



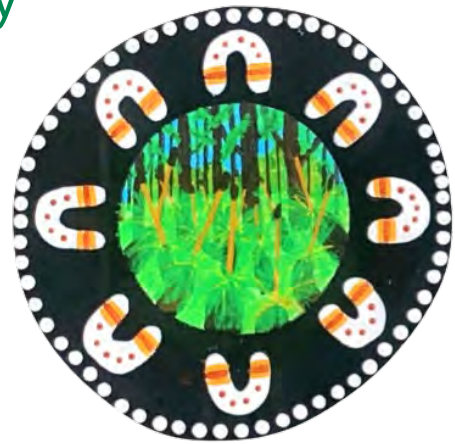
ecosure
improving ecosystems

**TILBUSTER 2 SOLAR FARM
BIODIVERSITY DEVELOPMENT
ASSESSMENT REPORT**

November 2024
GHD

Acknowledgement of Country

Ecosure acknowledge the Traditional Custodians of the lands and waters where we work. We pay deep respect to Elders past and present who hold the Songlines and Dreaming of this Country. We honour and support the continuation of educational, cultural and spiritual customs of First Nations peoples.



Certification

I certify that this report has been prepared based on the requirements of, and information provided under, the Biodiversity Assessment Method and clause 6.15 of the *Biodiversity Conservation Act 2016*. and that information provided is neither false nor misleading.

I declare that I have considered the circumstances and there is no actual, perceived or potential conflict of interest. This declaration has been made in the interests of full disclosure to the decision-maker. Full disclosure has also been provided to the client.

Name: Jennifer Timbs

Accredited assessor: BAAS24012

BOAMS case number: 00049575

Signature:



Date: 24/11/2024

Executive summary

Ecosure Pty Ltd was engaged by GHD Pty Ltd on behalf of Enerparc Australia Pty Ltd to provide a Biodiversity Development Assessment Report in accordance with the Biodiversity Assessment Method.

The report addresses requirements in the *Biodiversity Conservation Act 2016* for Stage 2 of the Tilbuster Solar Farm project, located off the New England Highway near Armidale, NSW. The project is a State Significant Development under the *Environmental Planning and Assessment Act 1979*, therefore, the Biodiversity Offsets Scheme is applicable to the project.

The proposed development is expected to result in the removal of native vegetation to facilitate the installation of solar arrays and associated infrastructure. Plot-based vegetation surveys were undertaken to confirm plant community types, the extent of native vegetation and patch size, and to calculate vegetation integrity at the site. The result of the assessment determined 788 ecosystem credits are expected to be required to offset the impact of clearing plant community types. Targeted surveys were conducted for a number of candidates threatened species based on the results of habitat suitability assessments. No threatened species were detected during surveys, however southern myotis is assumed to be present based on nearby records and the presence of marginal habitat, generating a total offset requirement of 475 species credits.

Credit ID / common name	Credit name	TEC	Total area (ha)	Number of credits required
PCT 3352	Armidale Quartz Hills Stringybark Forest	None	13.9	235
PCT 3359	New England Hills Stringybark-Box Woodland	White Box - Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland. Critically Endangered under the <i>Biodiversity Conservation Act 2016</i>	49.8	584
Southern myotis	<i>Myotis macropus</i>	N/A	40.1	475

An assessment of impacts, including direct, indirect, prescribed, and serious and irreversible impacts, was undertaken at the site with a focus on matters that are likely to impact native vegetation and threatened species. The proposed development has applied the avoid or minimise principle during the planning and design phase by limiting the development to the most modified habitat on site and maximising retention of native vegetation and fauna habitat.

Mitigation actions recommended for direct impacts include clearing protocols such as engagement of a qualified ecologist during vegetation clearing works, staged clearing, and timing of clearing to avoid critical life cycle events such as breeding during late winter/spring. Additionally, it is recommended the loss of koala food trees (>20 cm diameter at breast height) and impacts to koala habitat be compensated through compensatory planting of koala habitat or feed tree species.

Glossary, acronyms and abbreviations

APZ	Asset Protection Zone
BAM	Biodiversity Assessment Method
BAM-C	Biodiversity Assessment Method Calculator
BC Act	<i>Biodiversity Conservation Act 2016</i> (NSW)
BC Reg	Biodiversity Conservation Regulation 2017 (NSW)
BCS	Biodiversity, Conservation and Science (NSW)
BDAR	Biodiversity Development Assessment Report
BMP	Biodiversity Management Plan
BOAMS	Biodiversity Offsets and Agreement Management System
BOS	Biodiversity Offsets Scheme
BV	Biodiversity Values
CE	Critically Endangered
CEEC	Critically Endangered Ecological Community
CEMP	Construction Environment Management Plan
DBH	Diameter at breast height
DCCEEW	Department of Climate Change, Environment, Energy and Water (NSW)
DCCEEW-C	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DoE	Department of the Environment
EARs	Environmental Assessment Requirements
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
ERP	Ecological Restoration Plan
IBRA	Interim Biogeographic Regionalisation for Australia
GIS	Geographic Information System
HBT	Hollow-bearing trees
kV	Kilovolt
LEP	Local Environment Plan
LGA	Local Government area
LLS Act	<i>Local Land Services Amendment Act 2013</i>
LOOA	Likelihood of Occurrence Assessment
LRET	Large-scale Renewable Energy Target
MNES	Matters of National Environmental Significance

MW	Megawatts
MWh	Megawatts per hour
NSW	New South Wales
NVR	Native Vegetation Regulatory
PCT	Plant Community Type
PV	Photovoltaic
PWMP	Pest and Weed Management Plan
SAII	Serious and Irreversible Impact
SEARs	Secretary's Environmental Assessment Requirements
SSD	State Significant Development
SVTM	State Vegetation Type Map
TBDC	Threatened Biodiversity Data Collection
TEC	Threatened Ecological Community
VI	Vegetation integrity
VIS	Vegetation Information System
WoNS	Weeds of National Significance

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1 Introduction

1.1 Overview

Ecosure Pty Ltd (Ecosure) was commissioned by GHD Pty Ltd (GHD) on behalf of Enerparc Australia Pty. Ltd. (Enerparc) to prepare a Biodiversity Development Assessment Report (BDAR) for Stage 2 of the Tilbuster Solar Farm. The development is a State Significant Development (SSD) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) and as such a BDAR and entry into the Biodiversity Offset Scheme (BOS) is a requirement.

The BDAR has been prepared in accordance with the Biodiversity Assessment Method Order 2020. Requirements under the NSW *Biodiversity Conservation Act 2016* (BC Act) and *Biodiversity Conservation Regulation 2017* (BC Reg) have also been addressed.

The BDAR specifically aims to address section 6.12 of the BC Act which states:

“For the purposes of the biodiversity offsets scheme, a biodiversity development assessment report is a report prepared by an accredited person in relation to proposed development or activity that would be authorised by a planning approval, or proposed clearing that would be authorised by a vegetation clearing approval, that –

- a) assesses in accordance with the biodiversity assessment method the biodiversity values of the land subject to the proposed development, activity or clearing, and*
- b) assesses in accordance with that method the impact of proposed development, activity or clearing on the biodiversity values of that land, and*
- c) sets out the measures that the proponent of the proposed development, activity or clearing proposes to take to avoid or minimise the impact of the proposed development, activity or clearing, and*
- d) specifies in accordance with that method the number and class of biodiversity credits that are required to be retired to offset the residual impacts on biodiversity values of the actions to which the biodiversity offsets scheme applies.”*

1.2 Background

The Biodiversity Assessment Method (BAM) is part of the BOS. It provides a consistent approach to assess impacts on biodiversity values from a proposed development, activity, or clearing. The level of survey and assessment effort required by the BAM is scaled according to the extent and risk of impacts on biodiversity from a proposal, the availability and quality of existing information, and the area of land being assessed.

For a proposed development, the BAM outlines how to assess changes in native vegetation, threatened species and their habitats by:

- identifying the biodiversity values on the land
- determining the impacts on terrestrial biodiversity
- assessment for additional (prescribed) biodiversity impacts
- demonstrating how to avoid, minimise and/or mitigate impacts to biodiversity
- quantifying and describing the biodiversity credits required to offset the residual impacts on biodiversity values.

This assessment is documented within a BDAR. Preparation of a BDAR must be undertaken by a person accredited under Section 6.10 of the BC Act (the assessor). Assessors apply the BAM to determine the impact on biodiversity and use the BAM Calculator (BAM-C), an online tool that supports application of the BAM and enables assessors to enter field data from which equations determine the number and class of biodiversity credits required. Details and experience of authors and contributors to this BDAR are provided in Appendix 1.

The two classes of biodiversity credits are ecosystem credits and species credits. Vegetation communities are measured in ecosystem credits while threatened species of plants or animals can be measured in either one or both classes. Ecosystem credit species are threatened species whose occurrence can generally be predicted using vegetation surrogates and/or landscape features, or that have a low probability of detection using targeted surveys. Species credits are for threatened species where vegetation surrogates and/or landscape features cannot reliably predict the likelihood of their occurrence or components of their habitat. These species require targeted survey or an expert report to confirm their presence at a site. For a proposed development, a proponent may opt to assume a threatened species is present.

1.3 Development proposal

1.3.1 Overview

Enerparc is developing the Tilbuster Solar Farm (SSD 9619), which was approved under Part 4, Division 4.7 of the EP&A Act on 3 March 2022. The Tilbuster Solar Farm is located approximately 15 km north of Armidale in the Armidale Regional local government area (LGA).

The Tilbuster Solar Farm project involves the construction, operation and decommissioning of a solar farm with a generating capacity of 150 megawatts (MW) and 15 MW / 30 MW per hour (MWh) of battery energy storage. The solar farm will connect to the existing Transgrid 330 kilovolt (kV) transmission line, which traverses the site and connects Dumaresq substation to Armidale substation.

Due to design refinements made in response to ecological and heritage constraints identified during the preparation of the Environmental Impact Statement (EIS), the project was approved with a lower MW capacity than originally anticipated. As a result, Enerparc have acquired adjacent land and propose developing Stage 2 of the project to maximise the generation potential of the site (the proposal).

The proposed extension is located on land adjoining the project and would make use of transmission, storage and construction facilities on the Tilbuster Stage 1 site (Figure 1).

1.3.2 Naming conventions

The following naming conventions are used in this BDAR.

- **Tilbuster Stage 1** is the previously approved Tilbuster Solar Farm development (SSD 9616).
- The **proposal** is the proposed extension, or **Tilbuster Stage 2**.
- The **development site** is the 246.4 ha of land encompassing the proposed Stage 2 development, inclusive of Lot 4 DP800611 and Crown Land easements. The development site is subject to BAM assessment for this BDAR.

- The **development footprint** is the 141.7 ha area of land directly impacted by the proposal, including the solar array, perimeter fence, access roads, transmission line footprint and known temporary construction areas.
- The **assessment area** includes the *development site* and a 1500 m buffer surrounding the outside edge of the *development site* boundary.

1.3.3 Location

The proposal is located on Lot 4 DP800611, off the New England Highway (A15) in the Armidale LGA in NSW (Figure 1). The subject lot is approximately 235 ha and zoned as RU1 (Primary Production) under the Armidale Regional Local Environmental Plan 2012 (LEP). It is currently used for agricultural grazing, primarily for cattle and sheep, with vehicle access from two points off the New England Highway. The lot is dissected by approximately 11.4 ha of Crown Land easements associated with a power line and access to this power line from the highway. The subject lot and intersecting Crown Land easements collectively comprise the 264.4 ha development site.

Pending project approval, the development footprint within the lot is intended to be leased by Enerparc from the current owner.

1.3.4 Development

The proposal involves the construction, operation and decommissioning of a ground-mounted photovoltaic (PV) solar array, which would generate approximately 140 MW, in addition to the 150 MW currently approved at Tilbuster Stage 1.

The proposed development site has an area of 246.4 ha, with the proposed development footprint to be constructed on approximately 141.7 ha, approximately 57.5% of the site.

In total, the construction phase of the proposal is expected to take nine months, and the facility is expected to operate for around 30 years or extended pending further approvals. The proposal would be constructed concurrently with construction of Tilbuster Stage 1 to reduce the construction period for the entire solar farm and to minimise impacts on the community.

The primary access point for light and heavy vehicles during construction and operation would be via an existing access off the New England Highway, currently under construction for Tilbuster Stage 1. A temporary construction compound and laydown area would be located outside the development footprint but within the development site.

Construction of the proposal is anticipated to commence, pending approval, in early 2025. Up to 100 construction workers would be required.

Up to five full time equivalent operations and maintenance staff and service contractors would be required to operate the facility, including both Stage 1 and Stage 2 of the project. Existing transmission and storage infrastructure within the approved Stage 1 project footprint would be used to connect the proposal to the national electricity grid.

Appendix 2 shows the indicative layout for the proposal, including the location of solar PV panels, associated infrastructure and internal access roads.

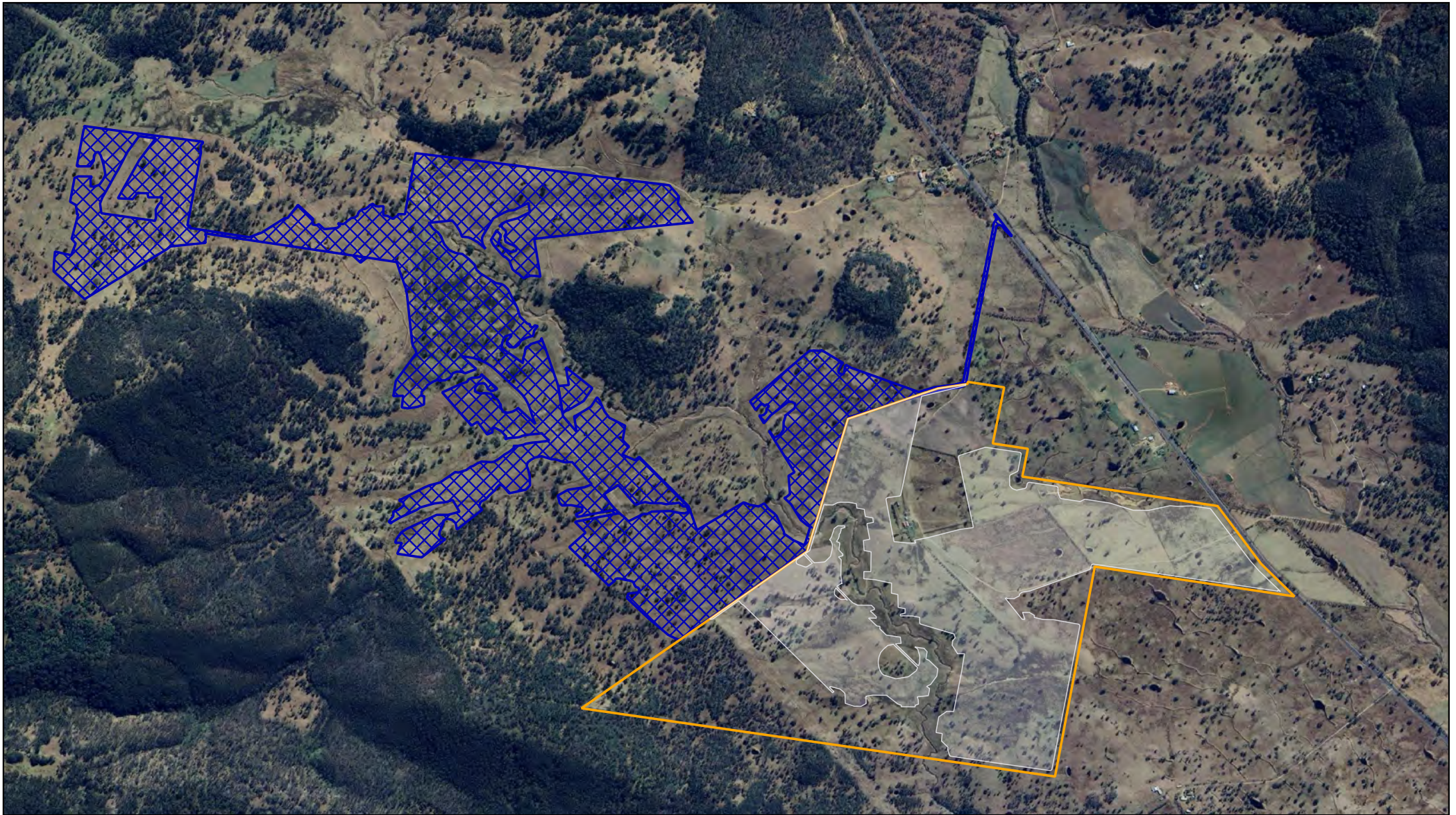






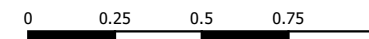
Figure 1: Site boundary and proposed development footprint

GHD
Tilbuster 2 Solar Farm BDAR

-  Road corridor
-  Tilbuster 1 development site boundary
-  Tilbuster 2 development site boundary
-  Tilbuster 2 proposed development footprint



Job number: PR8207
Revision: 0
Author: EH/RM
Date: 27/09/2024



GDA 2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 2020
Units: Meter

1.4 BDAR requirement

The development is a SSD that requires consent from the Minister for Planning under Part 4 Division 4.7 of the EP&A Act. As SSD, the BOS automatically applies to the proposal.

The Secretary's Environmental Assessment Requirements (SEARs), dated April 2024, outline the documentation requested by the NSW Department of Planning, Housing and Infrastructure to support the EIS, including the need for a BDAR.

Further guidance was issued in July 2024 by the NSW Department of Climate Change, Energy, the Environment and Water, Biodiversity, Conservation and Science (BCS) in their Environmental Assessment Requirements (EARs). This included specific consideration in the EIS of the following threatened species:

- bluegrass (*Dichanthium setosum*)
- austral toadflax (*Thesium australe*)
- pale-headed snake (*Hoplocephalus bitorquatus*)
- greater glider (*Petauroides volans*)
- koala (*Phascolarctos cinereus*)
- little eagle (*Hieroaetus morphnoides*)
- large bent-winged bat (*Miniopterus orianae oceanensis*)
- southern myotis (*Myotis macropus*)
- greater broad-nosed bat (*Scoteanax rueppellii*).

1.5 Biodiversity values not assessed

The following biodiversity values are not assessed under the BAM:

- marine mammals*
- wandering sea birds*
- biodiversity that is endemic to Lord Howe Island*
- biodiversity values associated with the assessment of the impacts of any clearing of native vegetation and loss of habitat on Category 1 exempt land (within the meaning of Part 5A of the *Local Land Services Act 2013*), other than the additional biodiversity impacts in accordance with clause 6.1 of the BC Reg[^].

*These values do not occur on the site. Therefore, these values will not require additional assessment outside of the scope of the BDAR.

[^] The subject land includes Category 1 – exempt land as shown on the draft Native Vegetation Regulatory Map (Appendix 3), and ground-truthed as part of this assessment. Biodiversity value assessments associated with Category 1 - exempt land have been excluded from this BDAR except where there may be additional biodiversity impacts.

1.6 Matters of National Environmental Significance

Matters of National Environmental Significance (MNES) relevant to the project have been identified in this BDAR, and measures to avoid, minimise, mitigate and offset impacts are

discussed.

Impacts to MNES are assessed in accordance with the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) Significant Impact Guidelines (v1.1, 2013). Referral to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEWC) is required if the proposal may potentially result in a significant impact.

1.7 Sources of information

Data and/or resources used or consulted in this assessment include:

- Biodiversity Offsets and Agreement Management System
- BAM-C
- BioNet Atlas records from 2004 – present
- BioNet Threatened Biodiversity Data Collection (TBDC)
- BioNet Vegetation Classification
- BioNet Web Services
- Protected Matters Search Tool (DCCEEWC)
- NSW Government Data Portal
- PlantNet NSW
- Tilbuster 2 Solar Farm Constraints Assessment (NGH 2022)
- Tilbuster Solar Farm BDAR V.14 (NGH 2021)
- Biodiversity, Conservation and Science (BCS) Guidance:
 - Principles for Mapping the Extent of Woodland Critically Endangered and Endangered Ecological Communities
 - Principles for Mapping the Extent of White Box – Yellow Box – Blakely’s Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Ecological Community
 - Land Categorisation – Native Vegetation Regulatory Map
- Guidance and Criteria to assist a decision maker to determine a serious and irreversible impact (DPIE 2019).

Spatial data used or consulted in the assessment include:

- Cadastre (NSW Spatial Services 2024a)
- Interim Biogeographic Regionalisation for Australia (IBRA) Regions and Subregions (DCCEEWC 2024a)
- NSW Mitchell Landscapes – Version 3.1 (DCCEEWC 2016)
- NSW State Vegetation Type Map – Version C2.0M2.0 (DCCEEWC 2023)
- Fauna Corridors for North-East NSW (DCCEEWC 2010)
- Fisheries NSW Spatial Data Portal (NSW Department of Primary Industries 2024)
- Acid Sulfate Soils Risk map (DCCEEWC 1998)
- NSW Hydrography (NSW Spatial Services 2024b).

Stage 1: Biodiversity assessment

2 Site context

2.1 Landscape features

2.1.1 IBRA Bioregions and Subregion

Interim Biogeographic Regionalisation for Australia (IBRA) Bioregions are geographically distinct bioregions based on common climates, geology, landforms and native vegetation (Thackaway and Creswell 1995). The site falls within the New England Tablelands IBRA bioregion and the Armidale Plateau IBRA subregion (Figure 3).

2.1.2 Rivers, streams, estuaries and wetlands

Based on mapping available in the NSW Hydrography dataset (NSW Spatial Services 2024b), several waterways and ephemeral drainage lines occur within the site (Figure 2). Approximately half of the site flows into the named watercourse Duval Creek, a 5th order stream which runs from north to south through the site. Tributaries of Duval Creek are mapped as a combination of 1st, 2nd and 3rd order streams. The other half of the site flows into the named watercourse Tilbuster Ponds (5th order) approximately 7.5 km downstream (south) of site. Duval Creek is mapped as containing Biodiversity Values (BV) (biodiverse riparian land).

During surveys (between August 2023 and September 2024) Duval Creek always held water, with water level noted up to approximately 0.5 m with low flow. No other waterways contained standing or flowing water (Plate 1, Plate 2).

No wetlands occur within the development site. The nearest Wetland of International Importance (RAMSAR) is the Gwydir wetlands, approximately 250 km upstream. Downstream, the nearest wetland is Riverland, over 1000 km to the southwest near the NSW-Victoria border.

Fourteen farm dams are mapped within the development site (Figure 2). The dams are highly disturbed from livestock use, with fringing vegetation limited and presenting little habitat value (Plate 3, Plate 4).



Plate 1 Photo of Duval Creek, facing south, September 2024



Plate 2 Photo of Duval Creek with bank erosion, facing south, September 2024



Plate 3 Photo of farm dam, September 2024



Plate 4 Photo of farm dam, September 2024

2.1.3 Habitat connectivity

The western side of the site is approximately 920 m north of the Duval Nature Reserve boundary and 2 km north-east of Mount Duval, a 1400 m peak.

Significant habitat and connectivity features, as defined by NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) in the Climate Change Corridors (Coastal Habitat) for North East NSW dataset, are mapped on the site and the assessment area, including:

- Climate change corridor (dry): Great Eastern Tablelands Corridor (Woodland birds, brush-tailed rock wallaby)
- Fauna Corridor – Mt Killalee.

The site is primarily utilized as grazing pasture and has been largely cleared, though scattered paddock trees are common throughout. These trees serve as features for maintaining connectivity for mammals and birds throughout the site and to the broader landscape. However, the lack of native ground cover and grazing practices limit its suitability for fauna. Towards the western end, there is a contiguous area of bushland, forming a link between Black Mountain to the north and Duval Nature Reserve to the south. This bushland in the western portion offers the highest value in terms landscape connectivity within the site and has been intentionally excluded from development activities. This connectivity feature extends into the development site as areas of remnant trees with a cleared understory subject to grazing. These disturbed remnants do not extend the full width of the development site or contain substantial disconnects. Duval Creek serves as a habitat corridor, but its disturbed nature and lack of riparian canopy and midstory vegetation minimises its connectivity value.

Overall, the connectivity for species requiring consistent canopy cover for movement is poor within the development site. However, species capable of ground traversal may still utilize both treed and cleared areas for movement, with relatively undisturbed bushland surrounding the site likely preferred.

2.1.4 Karst, caves, crevices, cliffs, rocks and other geological features of significance

No karsts, caves, significant crevices or cliffs occur within the development site. A small rocky outcrop is present north of Duval Creek.

2.1.5 Topography

The site is gently undulating but is generally flat. A slight gradient is evident from topographical mapping, with the elevation raising from approximately 1,040 m at the eastern boundary to approximately 1,100 m at the western boundary.

2.1.6 Areas of Outstanding Biodiversity Value

There are no Areas of Outstanding Biodiversity Value present within the site.

2.1.7 NSW (Mitchell) landscapes

The Mitchells (NSW) Landscape dataset maps the development site as Dingo Spur Meta-sediments.

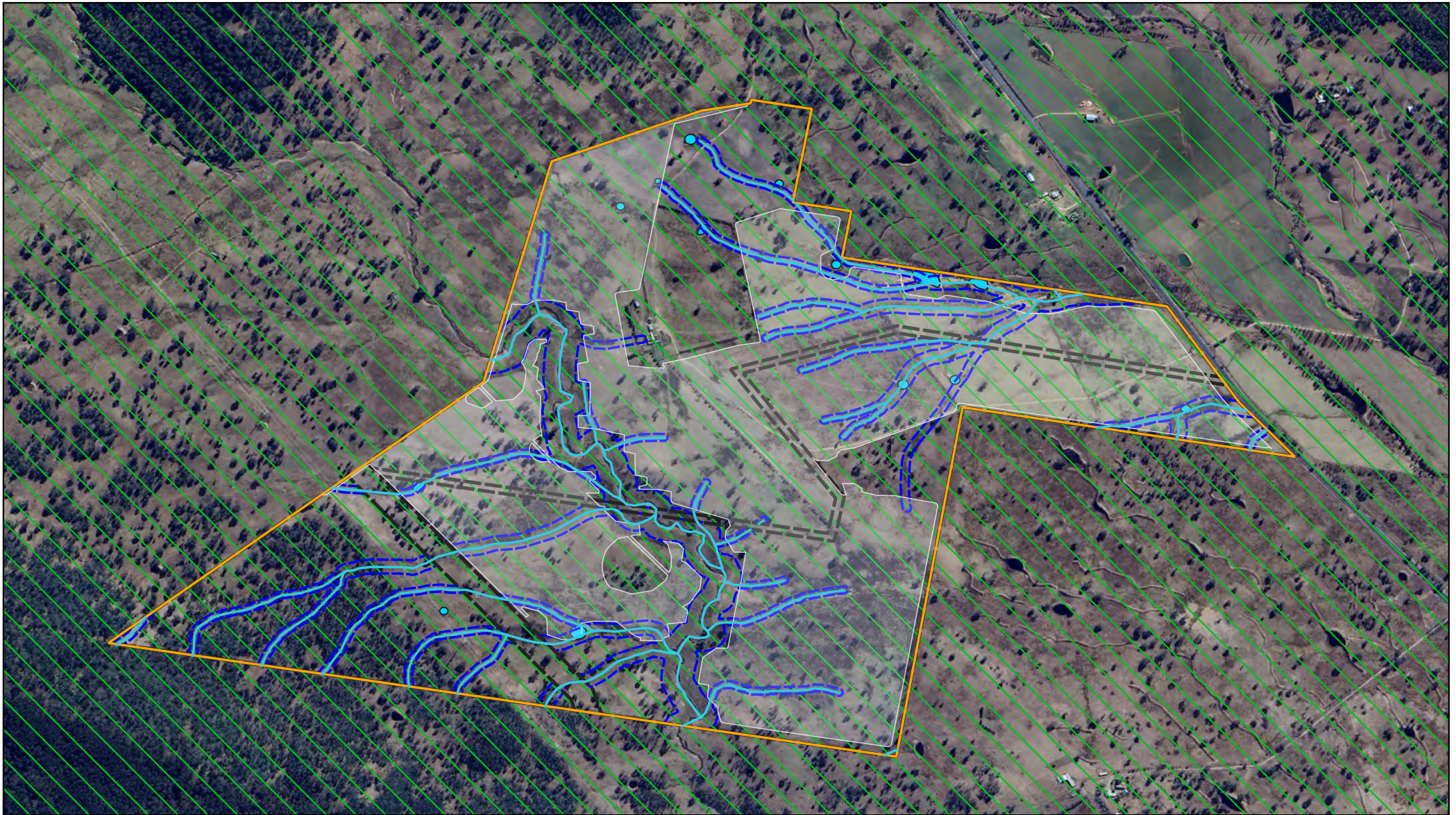


Figure 2: Site map

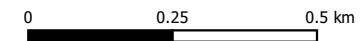
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Tilbuster 2 Solar Farm BDAR

- Development site boundary
- Proposed development footprint
- Internal cadastral boundaries
- Dams
- Riparian buffers
- Watercourses
- Mitchells Landscape**
- Dingo Spur Meta-sediments



Job number: PR8207
 Revision: 0
 Author: RM
 Date: 27/09/2024



GDA 2020 MGA Zone 56
 Projection: Transverse Mercator
 Datum: GDA 2020
 Units: Meter

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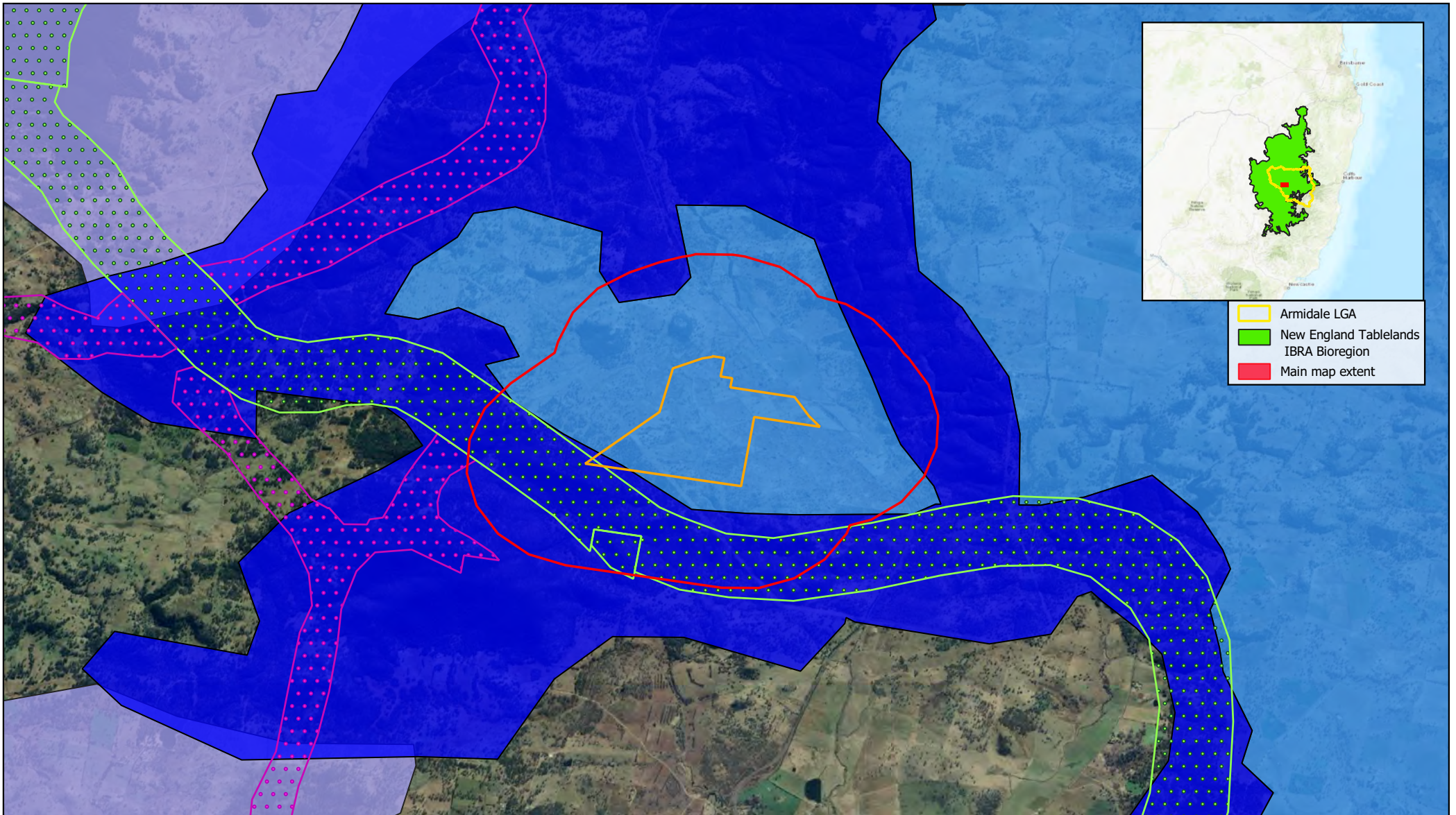


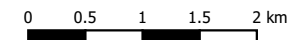
Figure 3: Location map

GHD
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- | | | |
|---------------------------|---|--|
| Development site boundary | NSW connectivity corridors - fauna | NSW connectivity corridors - climate change |
| Assessment area | Regional | Reserve buffers and linkages |
| | Subregional | Linkage onto Tablelands |
| | | Stepping stone key habitat |



Job number: PR8207
Revision: 0
Author: EH
Date: 27/09/2024



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Projection: Transverse Mercator
Datum: GDA 2020
Units: Meter

3 Assessing native vegetation, threatened ecological communities and vegetation integrity

3.1 Land category assessment

The draft Native Vegetation Regulatory (NVR) map was last updated on 26 March 2024 and shows the majority of the development site mapped as Category-1 exempt land (Appendix 3).

Under the BC Act (Section 6.8[3]), the BAM is to exclude the assessment of the impacts of any clearing of native vegetation and loss of habitat on Category 1-exempt land (within the meaning of Part 5A of the *Local Land Services Amendment Act 2013* [LLS Act]), other than any impacts prescribed by the regulations under section 6.3 of the BAM. Additionally, with the BAM (Section 1.5), biodiversity values associated with the assessment of the impacts of any clearing of native vegetation and loss of habitat on Category 1-exempt land (within the meaning of Part 5A of the LLS Act), other than the additional biodiversity impacts in accordance with clause 6.1 of the BC regulation, are not required to be assessed.

Until the NVR map undergoes finalisation and publication, accredited assessors may establish the categorisation of land for the consent authority to consider by applying the method used to make the NVR map under the provisions of the BC Act and the *Local Land Services Amendment Act 2016*. Specifically, for developments situated on rural land (excluding RU5 land), accredited assessors have the authority to determine whether the land qualifies as Category 1 – exempt land.

To determine and justify land identified as Category 1-exempt land, the following information was assessed:

- draft NVR map
- NSW Land Use mapping (DCCEEW 2019)
- historic aerial imagery
- field survey results.

Using the above resources, 108.2 ha was considered to be classed as Category 1-exempt land based on:

- being cleared of native vegetation prior to January 1990
- containing low conservation grassland
- absence of threatened ecological communities, indicator species for threatened ecological communities (TEC) or threatened flora species.

Further information on this assessment is included in Appendix 4.

Category 1 areas are exempt from further assessment in the BAM with exception to prescribed impacts as stated in Section 6.3 of the BC Act (refer to Section 6.1).

3.2 Native vegetation cover

Native vegetation cover on the site was assessed in relation to native vegetation cover within the broader area (assessment area). The native vegetation cover within the assessment area was calculated as the area of intact vegetation on the site and within a 1,500 m buffer of the site consisting of woody and non-woody vegetation cover. Within the assessment area, the percentage of native vegetation cover was calculated as 60.5% and therefore assigned to class (c) >30-70% as per BAM section 3.2 (Figure 4).

3.3 Native vegetation extent

The mapped extent of native vegetation on the site, including areas of ground cover and tree canopy cover was calculated to be 61.0 ha (Figure 5, Table 1).

Large areas of the site have been historically cleared and are currently dominated by native and introduced pasture grasses, which have been regularly slashed, sown and/or grazed to maintain these areas.

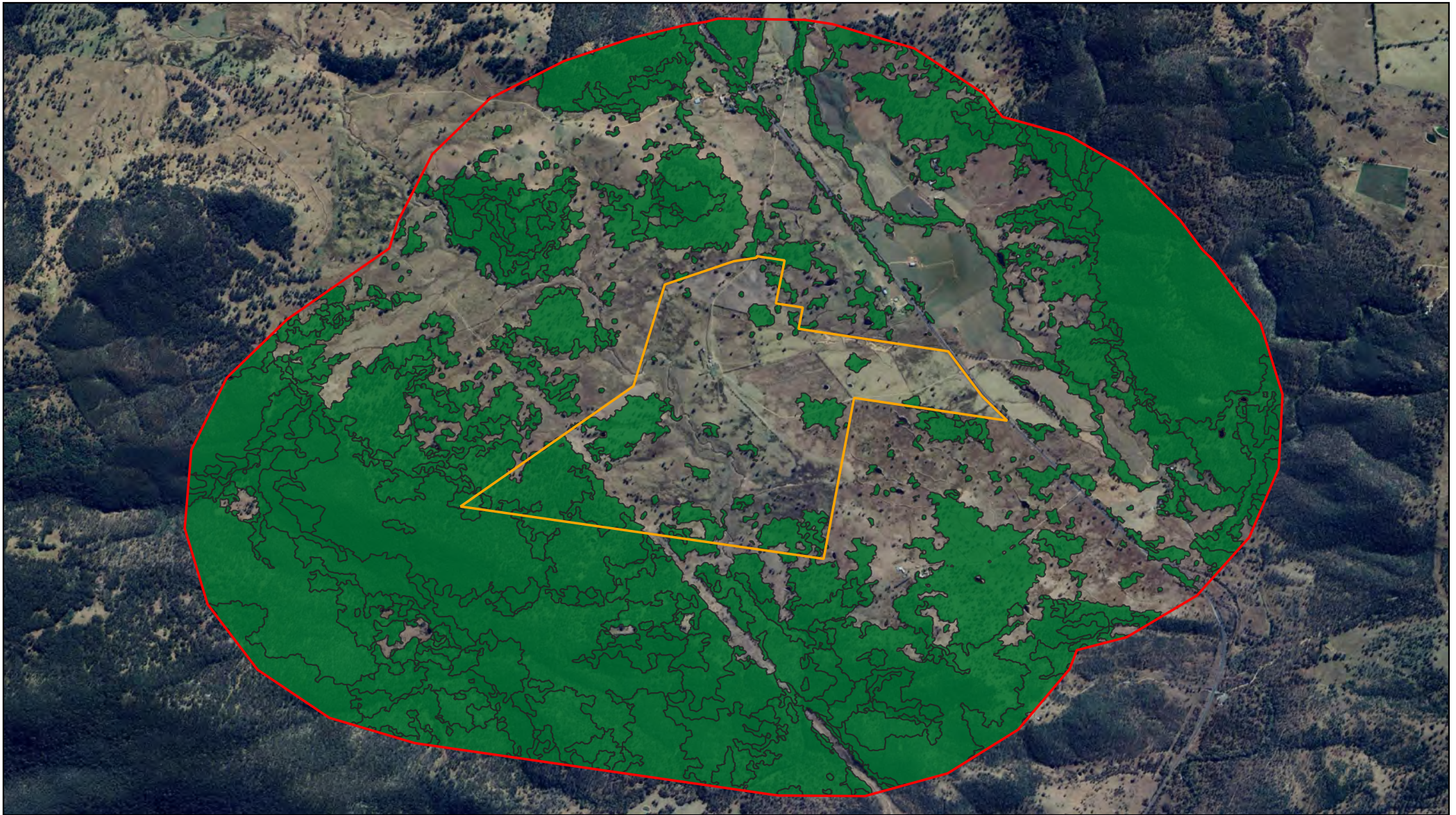


Figure 4: Native vegetation cover in assessment area

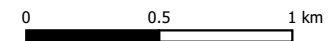
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- ▭ Assessment area
- ▭ Development site boundary
- Proposed development footprint**
- ▭ Native vegetation cover (60.5%)



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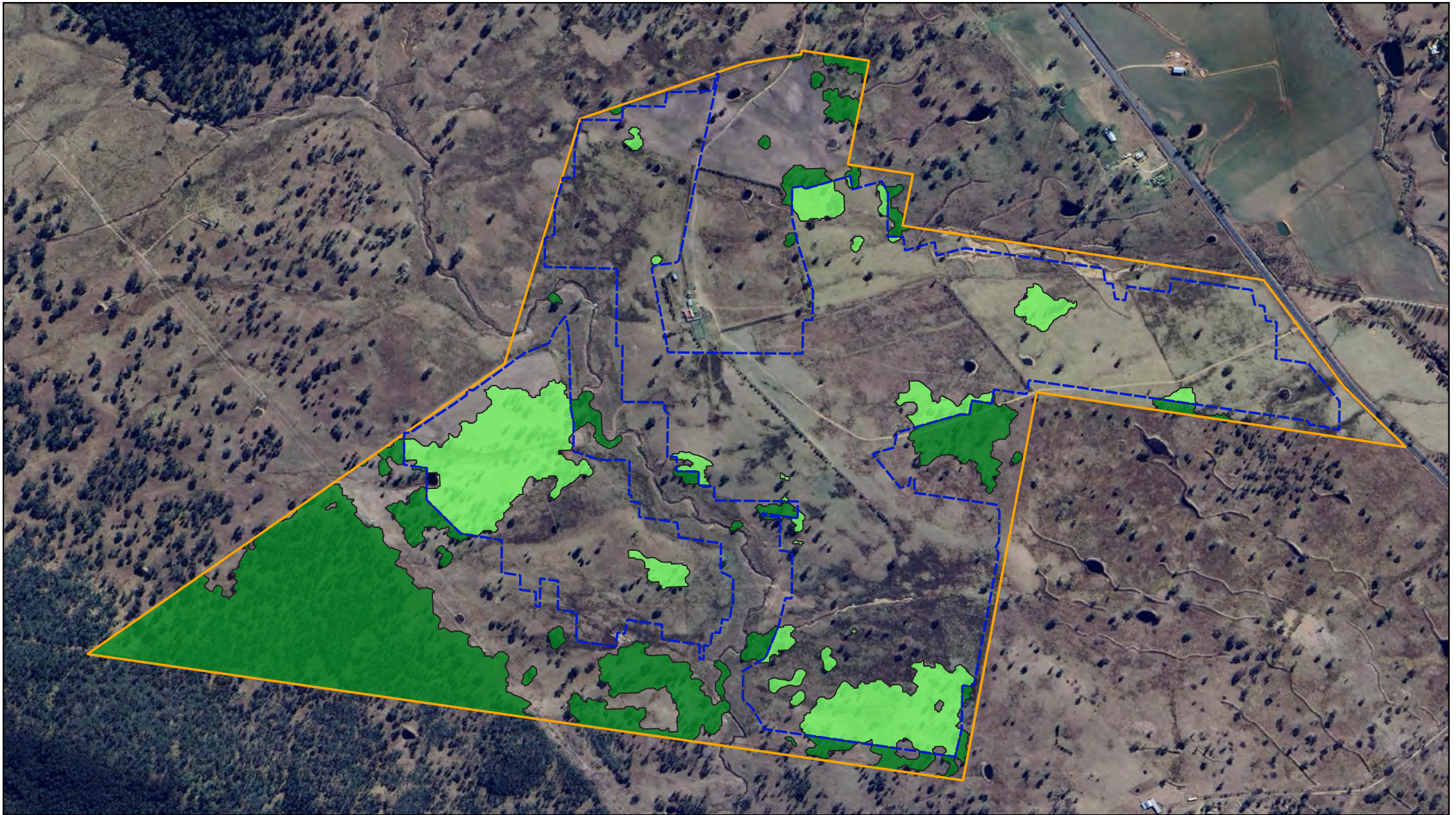


Figure 5: Native vegetation extent

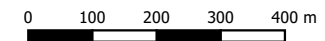
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Tilbuster 2 Solar Farm BDAR

- Site boundary
- - - Proposed development footprint
- Native vegetation within development footprint
- Native vegetation outside development footprint



Job number: PR8207
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 Date: 09/07/2024



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3.4 Plant Community Types

3.4.1 Mapped Plant Community Types on the site

The native vegetation assessment reviewed data from the State Vegetation Type Map (SVTM) (C2.0M2.0) and BioNet Vegetation Classification database (Figure 6).

Mapped vegetation communities for the development site are detailed in Table 1 and presented in Figure 6. Based on the available information, the site potentially contains discontinuous patches of four grassy woodland Plant Community Types (PCTs), mostly PCT 3359 - New England Hills Stringybark-Box Woodland. The site also contains large areas of unclassified vegetation.

Data from the NSW pre-clearing SVTM shows the site largely dominated by grassy woodlands pre-1750, suggesting land use has since modified the landscape and vegetation.

Table 1 SVTM Plant Community Types mapped on the site

PCT number	PCT common name	Area (ha)	Vegetation formation	Vegetation class	Potential TEC
3359	New England Hills Stringybark-Box Woodland	43.84	Grassy Woodlands	New England Grassy Woodlands	Has associated TECs
3344	New England Ribbon Gum Grassy Forest	13.25	Grassy Woodlands	Tableland Clay Grassy Woodlands	Has associated TECs
3353	Guyra Silvertop Stringybark Moist Forest	2.61	Grassy Woodlands	New England Grassy Woodlands	No associated TEC
4125	New England Youmans Stringybark-Box Forest	0.89	Dry Sclerophyll Forests (Shrubby sub-formation)	Northern Tableland Dry Sclerophyll Forests	No associated TEC
3351	Armidale Creekflat Snow Gum Woodland-Scrub	0.42	Grassy Woodlands	New England Grassy Woodlands	No associated TEC
0	Not classified – Non-native vegetation	185.32	N/A	N/A	N/A

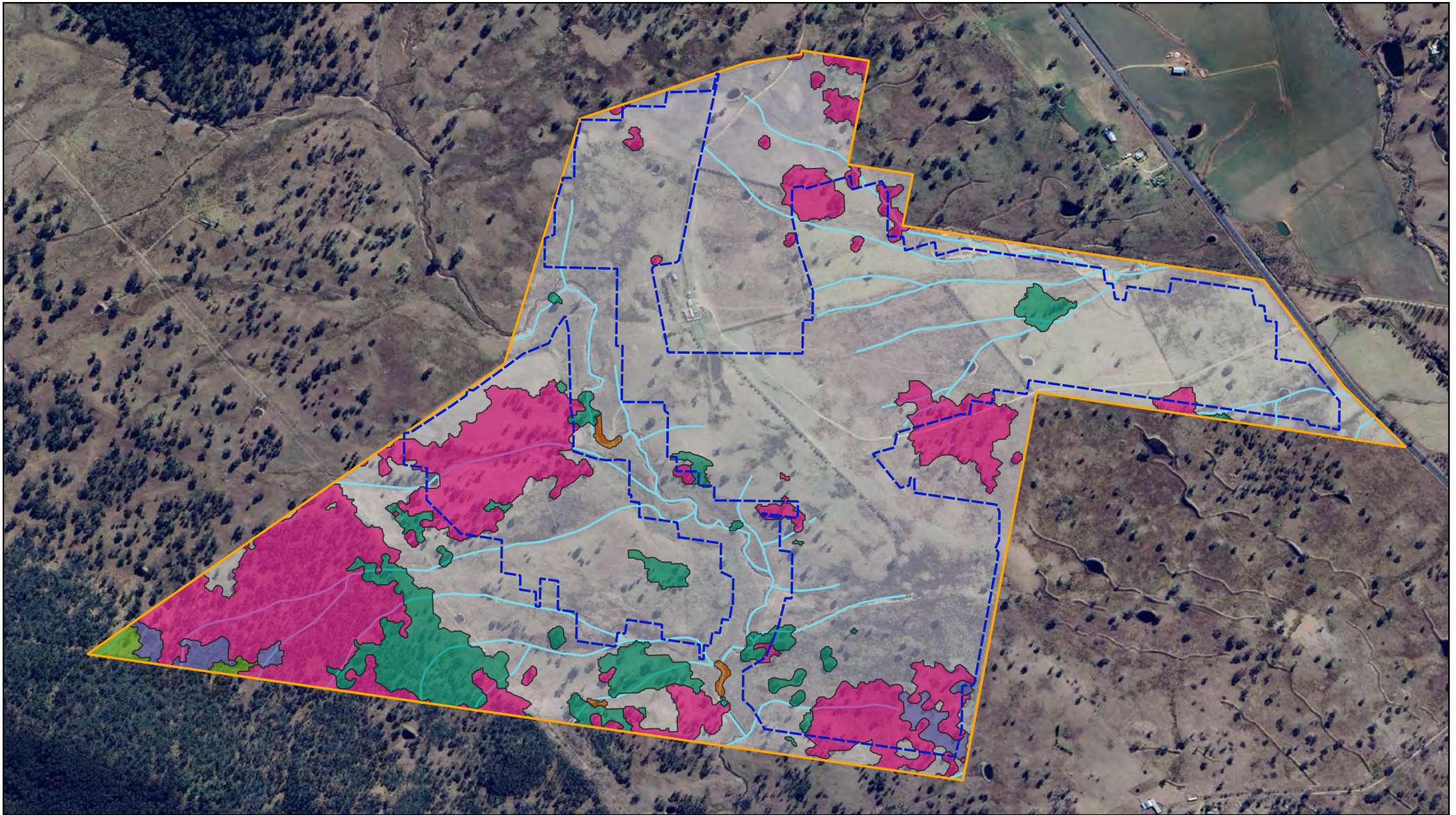
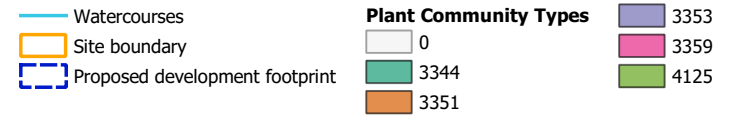


Figure 6: PCTs as mapped in the SVTM within the site

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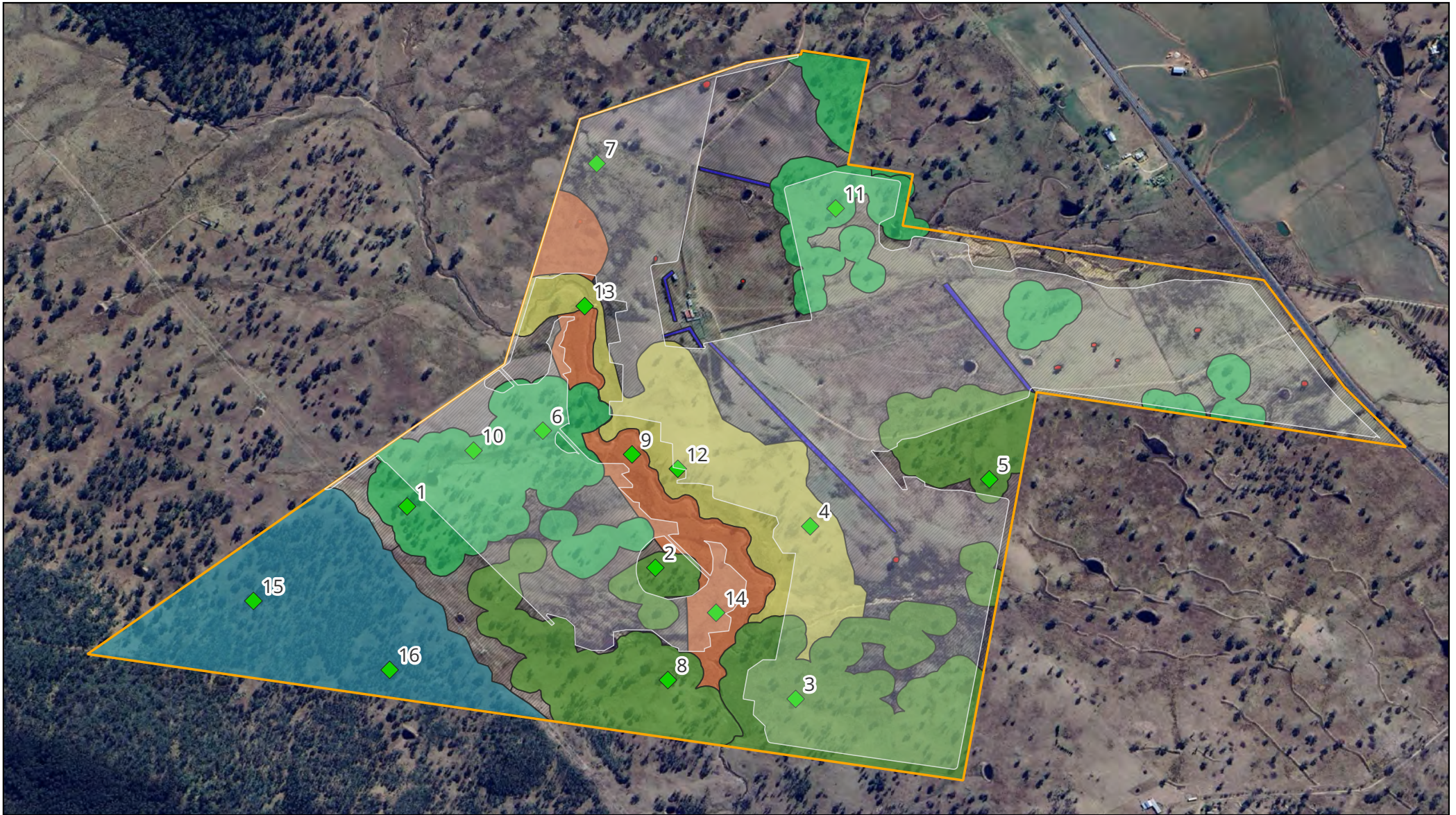


Figure 7: Confirmed vegetation

GHD

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- | | | |
|--|--|---------------|
| Zone 1 - PCT 3359 Open Woodland - Degraded | Zone 5 - PCT 3352 Open Woodland Degraded | Site boundary |
| Zone 2 - PCT 3359 Open Woodland - Cultivated | Zone 6 - Scattered Trees | BAM plots |
| Zone 3 - PCT 3359 Treeless Form - Degraded | Zone 7 - Planted Native Vegetation | |
| Zone 4 - PCT 3359 Woodland (Good) | Zone 8 - Category 1 - Exempt | |



Job number: PR8207
 Revision: 0
 Author: RM
 Date: 27/09/2024



0 100 200 300 400 m

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3.4.2 Plot-based vegetation surveys

Field-based vegetation surveys as described in the BAM were used to strategically sample PCTs within the development site. Noticeable variation in vegetation condition across the site was used to classify distinct vegetation zones. Survey effort was undertaken in accordance with the number of plots specified in Table 3 of the BAM (DPIE 2020a). Plots were not located in or near ecotones, vehicle tracks and their edges, or other disturbed areas that were not representative of the broad condition state of the vegetation zone.

Data was recorded using ESRI and ArcGIS Survey 123 applications loaded with Geographic Information System (GIS) layers to enable plot locations, plot data and observations to be recorded in the field with Geographic Positioning System (GPS) coordinates. Plot survey and flora species data are presented in Appendix 5 and plot locations are mapped in Figure 8. Vegetation assessment within each BAM plot includes composition, structure and function attributes (Table 2).

Table 2 Data recorded within a BAM plot

Attribute	Description	Area
Composition	Species richness (genus and species), status (native/exotic) and growth form	400 m ² (20 x 20 m)
Structure	Percent foliage cover and abundance	400 m ² (20 x 20 m)
Function	Number of large trees, plant regeneration, tree stem size class, length of fallen logs, litter cover, number of hollow-bearing trees and high threat exotic vegetation cover	1,000 m ² (50 x 20 m)

Vegetation surveys were undertaken between 7-11 August 2023, 22-26 January 2024 and 16-18 September 2024.

3.4.3 Confirmation of Plant Community Types

Vegetation formation, landscape position, dominant species and floristic composition were used to compare with vegetation community descriptions in the BioNet Vegetation Classification (NSW Government 2017a). Two PCTs in varying condition were confirmed within the development footprint area:

- PCT 3359 - New England Hills Stringybark-Box Woodland
- PCT 3352 - Armidale Quartz Hills Stringybark Forest.

A description of the PCTs identified within the development site is given in Table 3. The extent of field-validated native vegetation was calculated to be 138.3 ha (i.e. Zones 1-7).

Table 3 PCT Descriptions

PCT ID	PCT 3359	PCT 3352
PCT name	New England Hills Stringybark-Box Woodland	Armidale Quartz Hills Stringybark Forest
Vegetation formation	Grassy Woodlands	Grassy Woodlands
Vegetation class	New England Grassy Woodlands	New England Grassy Woodlands
Extent within the development footprint	116.5 ha, comprising: <ul style="list-style-type: none"> · 26.64 ha as closed woodland · 77.05 ha as open woodland · 12.85 ha treeless form. 	20.28 ha of open woodland
Justification of evidence used to identify the PCT	<p>Diagnostic species identified in the canopy layer include Blakely's red gum (<i>Eucalyptus blakelyi</i>), white box (<i>E. albens</i>), broad-leaved stringybark (<i>E. caliginosa</i>) and apple box (<i>E. bridgesiana</i>). The shrub layer was mostly absent, with some areas containing a sparse assemblage of peach heath (<i>Lissanthe strigosa</i>).</p> <p>The ground layer had several diagnostic species including forbs, kidney weed (<i>Dichondra repens</i>), native geranium (<i>Geranium solanderi</i>) and purple burr-daisy (<i>Calotis cuneifolia</i>).</p> <p>Areas lacking a canopy were dominated by sedges including slender flat-sedge (<i>Cyperus gracillis</i>) and common rush (<i>Juncus usitatus</i>).</p>	<p>Areas dominated by diagnostic species broad-leaved stringybark (<i>Eucalyptus caliginosa</i>). Other canopy species included rare mountain gum (<i>Eucalyptus dalrympleana</i>), Blakely's red gum (<i>Eucalyptus blakelyi</i>) and yellow box (<i>Eucalyptus melliodora</i>).</p> <p>The shrub layer was mostly absent, any species recorded were non-native. Peach heath was also recorded in PCT 3352, but grazed down to ground level.</p> <p>The ground layer had several diagnostic species including grasses; forest hedgehog grass (<i>Echinopogon ovatus</i>), wallaby grass (<i>Rytidosperma racemosum</i>) and common tussock grass (<i>Poa labillardierei</i> var. <i>labillardierei</i>). Diagnostic forbs included: hairy speedwell (<i>Veronica calycina</i>) and stinking pennywort (<i>Hydrocotyle laxiflora</i>).</p> <p>Along the riparian corridor and drainage depressions, ground cover was dominated by sedges including slender flat-sedge (<i>Cyperus gracillis</i>) and common rush (<i>Juncus usitatus</i>).</p>
Estimate of percent cleared	82.44%	74.61 %
Associated BC Act TEC	White Box - Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Part) <ul style="list-style-type: none"> · Critically Endangered · At risk of Serious and Irreversible Impacts (SAII). 	None
Associated EPBC Act TEC	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Part) <ul style="list-style-type: none"> · Critically Endangered. 	None

3.4.4 Vegetation zones and vegetation integrity

Native vegetation across the site was placed into seven vegetation zones reflecting the vegetation composition, structure and condition states observed within the development site:

- Zone 1 – PCT 3359 open woodland (degraded)
- Zone 2 – PCT 3359 open woodland (cultivated)
- Zone 3 – PCT 3359 treeless form (degraded)
- Zone 4 – PCT 3359 woodland (good)
- Zone 5 – PCT 3352 open woodland (degraded)
- Zone 6 – Scattered native trees
- Zone 7 – Planted native vegetation.

Zones 1-3 and Zone 5-7 are impacted by the development footprint.

A summary of vegetation zones within the development site is shown in Table 4 and Figure 7. Representative photos of each zone are presented in Plate 5 - Plate 12.

The plot-based vegetation survey data (Appendix 5) was entered into the BAM-C as per the BAM method to produce the current Vegetation Integrity (VI) score for the vegetation zone. VI scores including composition condition, structure condition and function condition for impacted vegetation zones are presented in Table 5.

The BAM streamlined assessment module - scattered trees assessment will apply to nine trees proposed to be impacted in Zone 6. Details of each scattered tree is provided in Table 6.

The streamlined assessment module – planted native vegetation will apply to impacted areas of Zone 7. Native tree and shrub species were planted linearly approximately 10 years ago (~2014) for functional purposes, i.e. windbreaks and boundaries between paddocks. Height ranged from <0.5 m to 3 m.

Table 4 PCTs recorded within the development site

PCT	PCT common name	Vegetation status	Vegetation zone	Description	No. of BAM plots	Total area in assessment area (ha)	Total area in development footprint (ha)	Total area in retained vegetation (ha)
3359	New England Hills Stringybark-Box Woodland	Open Woodland	Zone 1	Degraded – Areas of open woodland subject to grazing.	4 (Plots 2, 3, 5, 8)	43.45	20.82	22.62
			Zone 2	Cultivated – Areas of open woodland subject to intensive cultivation in the ground layer.	4 (Plots 1, 6, 10, 11)	33.60	23.29	10.31
		Treeless form	Zone 3	Areas lacking canopy or shrub layer, with predominantly native species in the understorey. Primarily along riparian zone of Duval Creek.	3 (Plots 7, 9, 14)	12.85	5.67	7.17
		Woodland	Zone 4	A closed woodland is present at the western extent of the site, beyond the transmission line easement, where the shrub and ground layer had higher diversity of structure and composition.	2 (Plots 15, 16)	26.64	0.00	26.64
3352	Armidale Quartz Hills Stringybark Forest	Open Woodland	Zone 5	Degraded – Areas of open woodland subject to grazing.	3 (Plots 4, 12, 13)	20.28	13.87	6.41
-	-	Scattered native trees	Zone 6	Scattered, isolated trees throughout site, including yellow box, Blakely's red gum and broad-leaved stringybark. All trees (or groups of <3 trees) are over 5cm DBH, located more than 50 m from another living tree >5 cm DBH, and surrounded by Category 1 land.	N/A - assessed under the scattered tree module	0.13	0.12	0.01
		Planted native vegetation	Zone 7	Lines of planted native vegetation between paddocks, varying condition, between 0-3m height.	N/A – assessed under the planted native vegetation module	1.36	1.01	0.35

PCT	PCT common name	Vegetation status	Vegetation zone	Description	No. of BAM plots	Total area in assessment area (ha)	Total area in development footprint (ha)	Total area in retained vegetation (ha)
		Non-native pasture / exempt	Zone 8	Highly modified pasture, predominantly non-native pasture and/or weed species.	N/A – observational points	108.16	76.90	31.26
Total						246.45	141.68	104.77

Table 5 Vegetation integrity score for vegetation zones within development site areas

Zone	Area (ha)	Composition condition score	Structure condition score	Function condition score	VI Score
1	20.82	17.8	25.2	39	25.9
2	23.29	7.6	7.9	66	15.8
3	5.67	7.8	50.5	0	7.3
5	13.87	17.4	52.2	35	31.7

Table 6 Tree data for all impacted scattered native trees in Zone 7

Tree number	Species	DBH (cm)	Hollows present	Class*	X	Y
1	<i>Eucalyptus blakelyi</i>	80	No	3	151.666432	-30.384015
2	<i>Eucalyptus blakelyi</i>	83	No	3	151.668477	-30.384653
3	<i>Eucalyptus melliodora</i>	72	No	3	151.675827	-30.386595
4	<i>Eucalyptus melliodora</i>	78	Yes	3	151.676716	-30.386073
5	<i>Eucalyptus blakelyi</i>	78	No	3	151.679120	-30.385781
6	<i>Eucalyptus melliodora</i>	>50	No	3	151.681587	-30.386969
7	<i>Eucalyptus blakelyi</i>	>50	Yes	3	151.677206	-30.386405
8	<i>Eucalyptus blakelyi</i>	>50	No	3	151.667622	-30.379994
9	<i>Eucalyptus blakelyi</i>	>50	No	3	151.667274	-30.381357

*As per definition in BAM 2020 Appendix B.2c(i-iii).



Plate 5 Photo of Zone 1 - PCT 3359 open woodland (degraded)



Plate 6 Photo of Zone 2 - PCT 3359 open woodland (cultivated)



Plate 7 Photo of Zone 3 - PCT 3359 treeless form (degraded)



Plate 8 Photo of Zone 4 - PCT 3359 woodland (good)



Plate 9 Photo of Zone 5 - PCT 3352 open woodland (degraded)



Plate 10 Photo of Zone 6 – Scattered native trees



Plate 11 Photo of Zone 7 – Planted native vegetation



Plate 12 Photo of Zone 8 – Category 1 – exempt land

3.5 Identification of Threatened Ecological Communities

Plant Community Type 3359 is associated with TECs listed as Critically Endangered under the NSW BC Act and the Commonwealth EPBC Act

All areas of PCT 3359 within the site were consistent with the descriptive attributes of the associated State listed TEC: White Box - Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions (Critically Endangered under the BC Act). These areas each met the following diagnostic criteria:

- the patch contains, or is likely to have contained, White Box, Yellow Box or Blakely's Red Gum; and
- the ground layer is mostly grassy (or would be if grazing and other disturbance measures were removed); and
- there is potential for assisted natural regeneration of the understory and/or tree layer.

One area (Zone 4) was identified as meeting the diagnostic criteria for federally listed TEC: White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (Critically Endangered under the EPBC Act):

- the patch contains White Box, Yellow Box or Blakely's Red Gum; and
- the patch has a predominantly native understorey; and
- the patch is 0.1 ha or greater in size; and
- there are 12 or more native understorey species present (excluding grasses), including one 'important' species (listed under the TEC conservation advice [DCCEEW-C 2023]).

An assessment of ground cover in other areas of PCT 3359 identified two areas within Zone 1 that were potentially consistent with the Commonwealth TEC criteria. These areas did not differ in condition significantly enough to validate a separate vegetation zone for the purposes of the BAM, however, due to composition and variation in the ground cover, these areas are likely to meet EPBC Act TEC criteria. The boundaries of EPBC Act TEC align with variation in disturbance levels and observed native species richness in the ground cover.

The extent of field-verified TECs listed under the BC Act and EPBC Act within the site are shown on Figure 8 and Figure 9 respectively and listed in Table 7. The BC Act listed TEC status of each vegetation zone was entered into the BAM calculator.

Table 7 Summary of TECs within the development site

Associated TEC common name and status	Corresponding vegetation zone(s)	Corresponding plots	Total area (ha)	Total area in dev. footprint (ha)	Total area in retained vegetation (ha)
White Box - Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions BC Act: Critically Endangered BC Reg: At risk of SAI	Zones 1-4	Plots 1, 2, 3, 5, 6, 8, 9, 10, and 11	116.53	49.78 (42.7%)	66.75 (57.3%)
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland EPBC Act: Critically Endangered	Zone 1 (part)	Plots 5 and 8	40.08	0	40.08

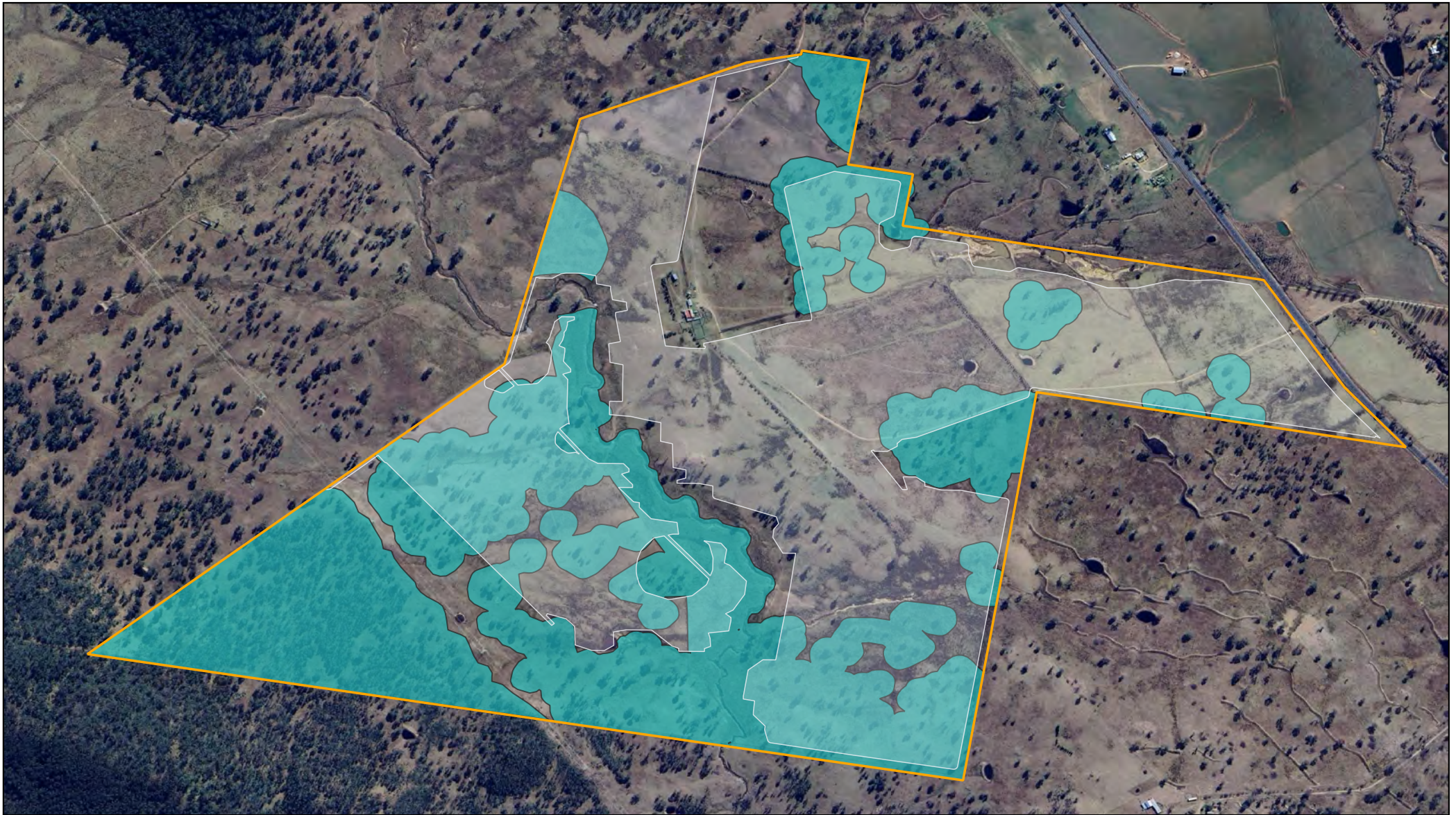


Figure 8: BC Act listed Threatened Ecological Communities on site

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Site boundary

Proposed development footprint

BC Act TEC - White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland



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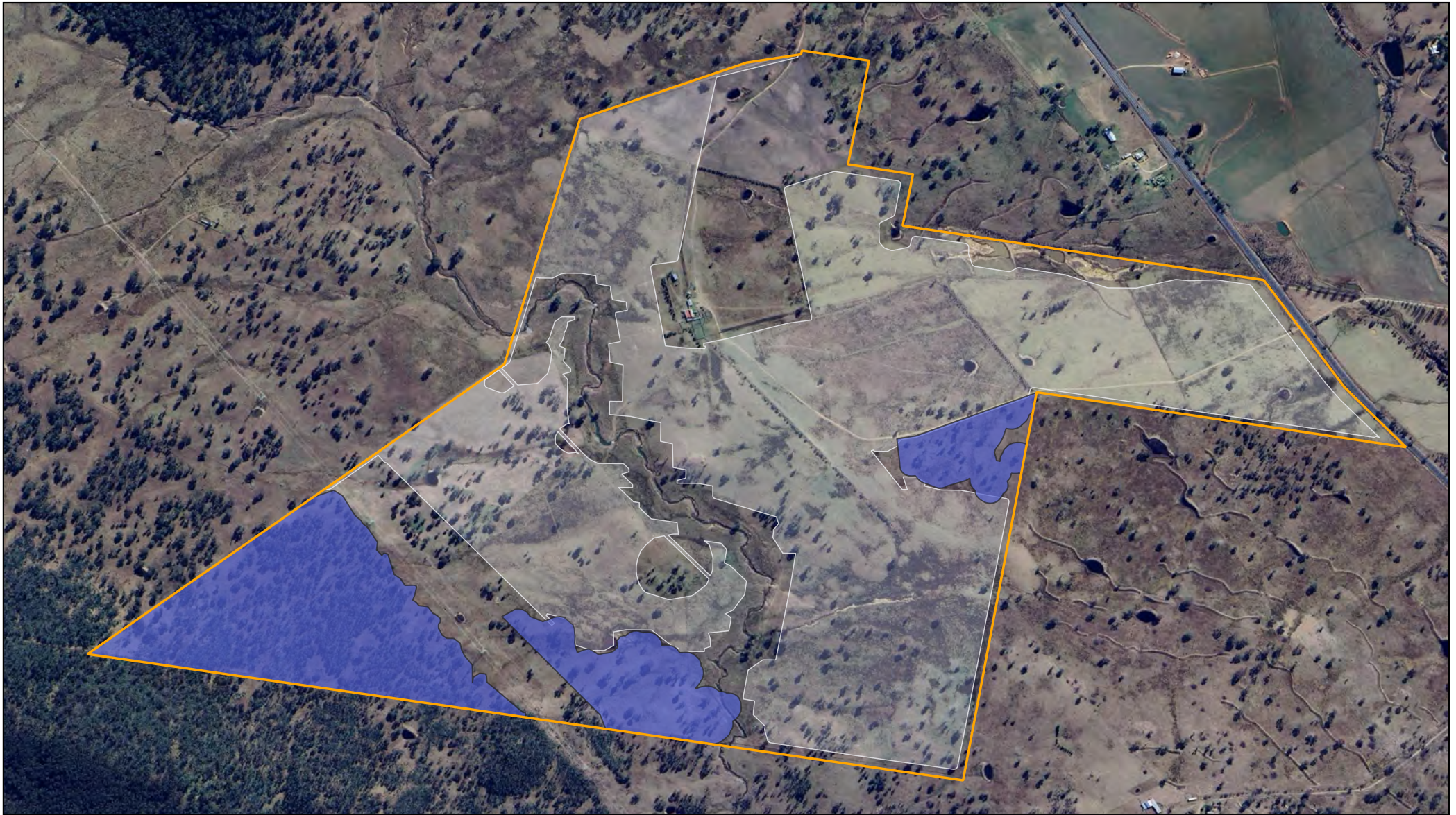


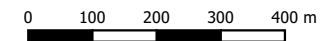
Figure 9: EPBC Act listed Threatened Ecological Communities on site

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- Development site boundary
- Proposed development footprint
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland



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4 Assessing habitat suitability for threatened species

4.1 Ecosystem credit and species credit threatened species

The BAM calculator generated 26 ecosystem credit (predicted) threatened species and 30 species credit (candidate) threatened species. The full list of predicted and candidate threatened species derived from the BAM calculator are presented in Appendix 6 and Appendix 7 respectively.

Ecosystem credit species are threatened species whose occurrence can generally be predicted using vegetation surrogates and/or landscape features, or that have a low probability of detection using targeted surveys. A targeted survey is not required to identify or confirm the presence of ecosystem credit species.

Species credit species are threatened species for which vegetation surrogates and/or landscape features cannot reliably predict the likelihood of their occurrence or components of their habitat.

4.1.1 Assessment of habitat suitability for predicted ecosystem credit species

Predicted threatened species were assessed in conjunction with information collected about site context of the subject land, vegetation integrity attributes, and data from the TBDC database (DCCEEW 2024). Information on geographic limitations and habitat constraints were assessed in relation to the site to determine the likely presence of predicted threatened species.

4.1.2 Assessment of habitat suitability and habitat survey for candidate species credit species

Information from the TBDC database including associated vegetation types, habitat features, geographic limitations, and habitat constraints, were used to assess the potential presence of each candidate species on the site (DCCEEW 2024). An assessment of habitat constraints and/or geographic limitations determined 13 candidate species credit species are unlikely to occur on the site and were therefore excluded from targeted surveys (Table 8). The site is outside the listed geographic limits for one species, powerful owl (*Ninox strenua*), however, a record from 2021 is present within 5 km of the site and it was therefore cautiously included subject to further assessment.

The remaining three flora species and 14 fauna species were surveyed (Table 10). Observations were carried out during field surveys to support vegetation identification and habitat assessments, and to determine suitable locations for targeted surveys. Additionally, fauna survey methods included searching for secondary signs and primary sightings, incorporating both daytime and nocturnal surveys. Survey effort for threatened fauna and flora is detailed in Table 10 and depicted in Figure 10 and Figure 11.

Table 8 Predicted and candidate threatened species assessed as not present at the site

Common name	Scientific name	BC Act listing	EPBC Act listing	Credit type	Habitat / Geographic Constraint	Reason for exclusion from further assessment
Fauna						
<i>Anthochaera phrygia</i>	regent honeyeater (breeding)	CE	CE	Species	Important Habitat Map (DPE).	The site is located outside Important Habitat Map areas (DCCEEW 2024).
<i>Cercartetus nanus</i>	eastern pygmy-possum	V	Not listed	Species	Found in a broad range of habitats from rainforest through sclerophyll forest and woodland to heath. They may occupy small patches of vegetation in fragmented landscapes and although the species prefers habitat with a rich shrub understory, they are known to occur in grassy woodlands.	Habitat for this species is considered to be highly degraded due to the history of disturbance (i.e. vegetation clearing and grazing activities). There are no Bionet Atlas records within 5 km of the site, the closest record is approximately 57 km to the east. Absence of preferred foraging trees (i.e. Banksia spp.).
<i>Chalinolobus dwyeri</i>	large-eared pied bat (breeding)	V	E	Species	Within two kilometres of rocky areas containing caves, overhangs, escarpments, outcrops, or crevices, or within two kilometres of old mines or tunnels.	The site does not contain suitable breeding habitat for this species. There are no Bionet Atlas records within the Armidale LGA.
<i>Lathamus discolor</i>	swift parrot	CE	CE	Species	Important Habitat Map (DPE).	The site is located outside Important Habitat Map areas (DCCEEW 2024).
<i>Miniopterus orianae oceanensis</i>	large bent-winged bat (breeding)	V	Not listed	Species	Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures.	The site does not contain suitable breeding habitat for this species. There are no Bionet Atlas records within 5 km of the site.
<i>Petrogale penicillata</i>	brush-tailed rock wallaby	E	V	Species	In NSW they occur from the Queensland border in the north to the Shoalhaven in the south, with the population in the Warrumbungle Ranges being the western limit. They occupy rocky escarpments, outcrops and cliffs with a preference for complex structures with fissures, caves and ledges, often facing north.	The site does not contain habitat suitable for this species. There are no Bionet Atlas records within 5 km of the site.
<i>Pteropus poliocephalus</i>	grey-headed flying-fox (breeding)	V	V	Species	Breeding camps. Breeding camps will need to be identified by survey.	There are no breeding camps present on the site. There are no Bionet Atlas records of camps within 5 km of the site. The nearest flying-fox camp is recorded in Armidale town, approximately 15 km south. This camp is not listed as nationally important (DCCEEW-C 2024b).
Flora						
<i>Callistemon pungens</i>	prickly bottlebrush	Not listed	V	Species	Habitats range from riparian areas dominated by <i>Casuarina cunninghamiana</i> subsp. <i>cunninghamiana</i> to woodland and rocky shrubland. Often in rocky watercourses, usually with sandy granite (occasionally basalt) creek beds.	Site does not contain areas of <i>Casuarina</i> spp and the midstorey habitat is degraded to a degree that the species is unlikely to occur. There are no Bionet Atlas records within 5 km of the site.
<i>Caladenia amnicola</i>	an orchid	E	Not listed	Species	<i>Caladenia amnicola</i> is restricted to a single location west of Armidale. Species is known to occur in rocky habitat within shrubby woodland supporting shallow soils, beside and above streams (NSW Threatened Species Scientific Committee 2023)	Microhabitat suitable to support the species is not present within the site.
<i>Grevillea beadleana</i>	Beadle's Grevillea	E	E	Species	Grows on Open eucalypt forest and woodland with a shrubby understory on granite. Known from four separate areas, all in north-east NSW: the Torrington area west of Tenterfield, Oxley Wild Rivers National Park, Guy Fawkes River National Park and at Chambigne Nature Reserve south-west of Grafton. Historical records suggest it was also once found near Walcha.	Site is outside geographic limits of known occurrences and does not contain the granite environment. There are no Bionet Atlas records within 5 km of the site, the closest record is over 30 km south in Oxley Wild Rivers National Park.
<i>Haloragis exalata</i> subsp. <i>velutina</i>	tall velvet sea-berry	V	V	Species	Grows in damp places near watercourses. This subspecies also occurs in woodland on the steep rocky slopes of gorges.	The site does not contain habitat suitable for this species. Areas of potential habitat have been degraded to a degree that the species is unlikely to occur. There are no Bionet Atlas records within 5 km of the site.
<i>Swainsona sericea</i>	silky swainson-pea	V	Not listed	Species	Box-gum woodland in southern tablelands and South-West Slopes. Sometimes in association with cypress pines.	Habitat is degraded to a degree that the species is unlikely to occur. There are no Bionet Atlas records within 5 km of the site.
<i>Thesium australe</i>	austral toadflax	V	V	Species	Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with Kangaroo Grass (<i>Themeda triandra</i>). A root parasite that takes water and some nutrient from other plants, especially Kangaroo Grass.	Habitat is degraded such that this species is unlikely to occur. Grazing by livestock is a main threat to the species which is prevalent. <i>Themeda triandra</i> was not recorded on the site. There are no Bionet Atlas records within 5 km of the site.

4.2 Other threatened species

A search of the NSW Bionet Atlas identified records of threatened species listed under the BC Act and/or EPBC Act within a 5 km buffer of the site. Two fauna species not listed as predicted or candidate species in the BAM-C are detailed in Table 9. These species have been considered for further assessment as well as pale-headed snake, in line with the BCS EARs (refer to Section 1.4).

Table 9 Other threatened species subject to assessment

Common name	Scientific name	BC Act listing	EPBC Act listing	Species credit type	Habitat / Geographic Constraint	Included or excluded for further assessment
<i>Scoteanax rueppellii</i>	greater broad-nosed bat	V	E	Ecosystem	Within two kilometres of rocky areas containing caves, overhangs, escarpments, outcrops, or crevices, or within two kilometres of old mines or tunnels.	Included. Added as an ecosystem credit.
<i>Myotis macropus</i>	southern myotis	CE	CE	Species	Important Habitat Map (DPE).	Included. Assumed present (see Section 4.4).
<i>Hoplocephalus bitorquatus</i>	pale-headed snake	V	Not listed	Species	Found mainly in dry eucalypt forests and woodlands, cypress forest and occasionally in rainforest or moist eucalypt forest. In drier environments, it appears to favor habitats close to riparian areas.	Excluded. The habitat on site is sub-optimal for this species. Hollow bearing trees are present, but the riparian environment is highly disturbed, lacks native vegetation cover and is of poor condition for this species. The closest records of pale-headed snake are approximately 100 km east of the site, or 140 km to the west.

4.3 Survey effort

Three rounds of targeted species surveys were undertaken within the survey windows for species requiring assessment (Table 10). Round 1 was completed in August 2023, round 2 was carried out in December 2023 and round 3 was undertaken in January 2024. The cumulative survey effort applied at the site for fauna and flora are provided on Figure 10 and Figure 11 respectively. Incidental observations of threatened flora and/or fauna were also recorded, and opportunistic observations of birds were made during all field surveys. All flora records are provided in Appendix 5 and fauna records are provided in Appendix 8. Surveys were undertaken prior to the development footprint being available and were designed to assess target species presence across the entire development site.

All survey effort was carried out in accordance with the relevant survey and assessment guidelines listed below:

- Ecosure's Scientific License (SL100075)

- Ecosure's Animal Care and Ethics Committee Certificate of Approval - Fauna Surveys Research Protocol (18/739)
- TBDC (DCCEEW 2024)
- Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (NSW Government 2004)
- BAM (DPIE 2020a)
- Koala BAM Survey Guide (DPE 2022)
- The Spot Assessment Technique (SAT): A tool for determining localised levels of habitat use by koalas *Phascolarctos cinereus* (Phillips and Callaghan 2011)
- 'Species credit' threatened bats and their habitats: NSW survey guide for the BAM (NSW OEH 2018)
- NSW survey guide for threatened frogs: A guide for the survey of threatened frogs and their habitats for the BAM (DPIE 2020b)
- Survey guidelines for Australia's threatened mammals: Guidelines for detecting mammals listed as threatened under the EPBC Act (DSEWPAC 2011)
- Surveying threatened plants and their habitats: NSW survey guide for the BAM (DPIE 2020c).

Table 10 Survey effort

Date	Survey type	Survey method	Target species	Survey effort	Weather conditions*
Round 1 August 2023					
7th - 11 th August 2023	Ecosystem surveys	BAM plot surveys were carried out by two surveyors to confirm vegetation communities on the site.	N/A	4 days	Dry, calm, 0.2 mm of rain in previous 3 days. Temperature: Minimum -1 °C, maximum 18°C.
27 th - 28 th August 2023	SAT survey	Surveys to assess the presence of koala scat on the site, searching up to 30 trees within 250m ² sampling sites, for at least two-person minutes per tree. Zones subject to survey: 1, 2, 5, 6 (total area 99 ha).	Koala	~16 person hours	Dry, calm, 0 mm of rain in previous 3 days. Temperature: Minimum 1.9 °C, maximum 19.1°C.
27 th - 28 th August 2023	Hollow bearing tree and stick nest search	A systematic search for hollow bearing trees (HBT) and large stick nests (white-bellied sea eagle and little eagle) was undertaken concurrently with SAT surveys.	All candidate bird and mammal species	With SAT surveys	Dry, calm, 0 mm of rain in previous 3 days. Temperature: Minimum 1.9 °C, maximum 19.1°C.
26 th - 28 th August 2023	Diurnal bird	Systematic bird surveys (60-person mins each) were conducted within the site at dusk and dawn. All bird species observed or heard were recorded during the survey period. Opportunistic observations were also recorded during all site surveys.	Glossy black cockatoo, white-bellied sea eagle, little eagle, square-tailed kite	3 person hours	Dry, calm, 0 mm of rain in previous 3 days. Temperature: Minimum 1.9 °C, maximum 19.1°C.
26 th - 28 th August 2023	Nocturnal call playback	Call playback, followed by a period of listening, for target species was completed at three locations for three nights.	Bush-stone curlew, barking owl, masked owl, powerful owl	4.5 hours	Dry, calm, 0 mm of rain in previous 3 days. Temperature: Minimum 1.9 °C, maximum 19.°C.
26 th - 28 th August 2023	Spotlighting [^]	Two surveyors used handheld 750 lumen spotlights to detect 'eye shine' and/or 'silhouette' of nocturnal fauna. Surveyors traversed the subject land on foot for a total period of three person hours on three separate nights during calm weather.	Koala, squirrel glider, southern greater glider	9 person hours	Dry, calm, 0 mm of rain in previous 3 days. Temperature: Minimum 1.9 °C, maximum 19.1°C.

Date	Survey type	Survey method	Target species	Survey effort	Weather conditions*
Round 2 – December 2023					
17 th – 20 th December 2023	Aural-visual frog survey	Two surveyors completed nocturnal aural-visual surveys over four nights. Survey transects were completed along Duval Creek and point surveys were completed at the dams on site. The clock was stopped during travel between dams.	Tusked frog, peppered tree frog	8 person hours	17 th - Dry, calm, 2 mm rain in previous 3 days. 18 th - rain immediately preceding survey. 19 th – 5 mm rain, calm 20 th – 35 mm rain, calm Temperature: Minimum 9 °C, maximum 33.4°C.
17 th – 18 th December 2023	Spotlighting^	Two surveyors used handheld 750 lumen spotlights to detect 'eye shine' and/or 'silhouette' of nocturnal fauna. Surveyors traversed the subject land on foot for a total period of two person hours on two separate nights during calm, dry weather.	Koala, southern greater glider, squirrel glider	4 person hours	17-18 th - Dry, calm, 2 mm rain in previous 3 days. Temperature: Minimum 9 °C, maximum 33.4°C.
17 th – 19 th December 2023	SAT survey (cont.)	Surveys to assess the presence of koala scat on the site, searching up to 30 trees within 250m ² sampling sites, for at least two-person minutes per tree.	Koala	~16 person hours	17-18 th - Dry, calm, 2 mm rain in previous 3 days 19 th – 5 mm rain, calm. Temperature: Minimum 9 °C, maximum 33.4°C.
17 th – 19 th December 2023	Hollow bearing tree and stick nest search	A systematic search for HBTs and large stick nests (white-bellied sea eagle and little eagle) was undertaken concurrently with SAT surveys.	All candidate bird and mammal species	With SAT surveys	17-18 th - Dry, calm, 2 mm rain in previous 3 days 19 th – 5 mm rain, calm. Temperature: Minimum 9 °C, maximum 33.4°C.
17 th December 2023 – 22 nd January 2024	Passive bio-acoustic detection	Deployment of six Song Meters for a total of 135 recording days. Song Meters were located to capture likely fauna movement corridors and frog habitat.	Tusked frog, peppered tree frog, koala and bush stone curlew.	135 recording days	Total rainfall over recording period: 193.4 mm. Temperature: Minimum 8.6 °C, maximum 33.4°C.

Date	Survey type	Survey method	Target species	Survey effort	Weather conditions*
Round 3 – January 2024					
23 rd – 25 th January 2024	Threatened flora: Two-phase grid based systematic survey	A grid spaced at 100 m ² was overlaid onto the subject land using a GIS. Surveys were undertaken where the 100 m ² gridlines intersect within suitable habitat for a target species. At each intersect, a 40 m diameter area was systematically searched for target species.	Bluegrass, northern blue box, narrow-leaved black peppermint	3 days	Dry, calm, 0 mm rain in previous 3 days. Temperature: Minimum 11.3 °C, maximum 34.8°C.
23 rd – 25 th January 2024	TEC assessments	Additional VI plots and rapid assessments to refine PCT and TEC mapping.	N/A	N/A	As above.
Additional surveys					
14 th August 2024	Site visit with BCS and Enerparc	Site visit to: <ul style="list-style-type: none"> · discuss vegetation mapping approach with BCS · confirm project extent and discuss impacts with Enerparc. 	N/A	4 hours	Dry, calm, 5 mm rain in previous 3 days. Temperature: Minimum 9.7 °C, maximum 18°C.
16-18 th September 2024	Ecosystem surveys	BAM plot surveys were carried out by two surveyors to confirm vegetation communities on the site.	N/A	2 days	Dry, calm, 3.4 mm rain in previous 3 days. Temperature: Minimum -2.4°C, maximum 18.5°C.

* Weather stations: nearest rainfall station is 56240, located 9.km northeast. Temperature records are from station 56037, located 15 km away.

^Spotlighting transects were modified to random meanders due to the sparsity of tree cover

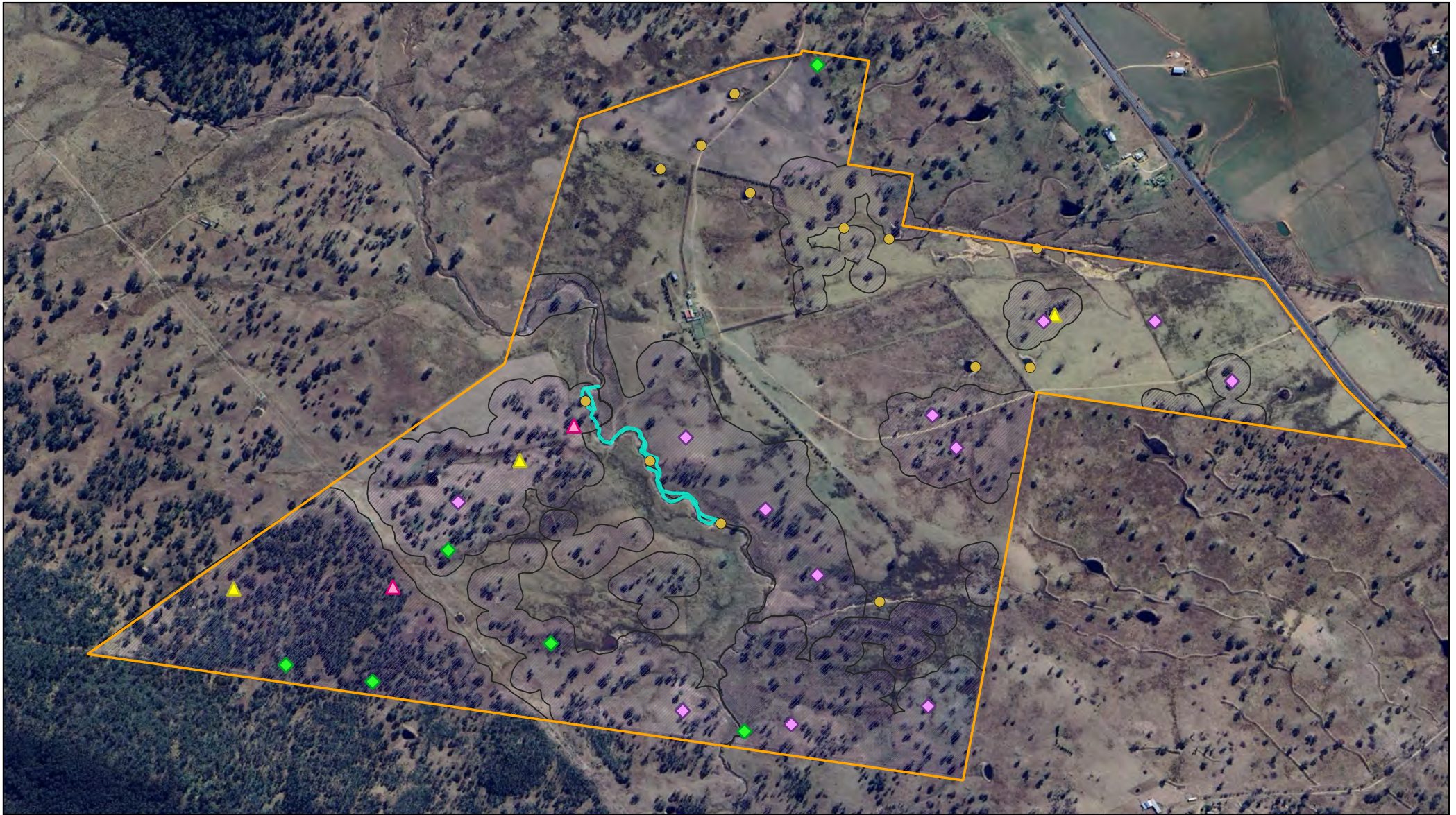


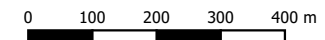
Figure 10: Fauna survey effort

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Tilbuster 2 Solar Farm BDAR

- | | | |
|------------------------------|--------------------------|---------------------------|
| Spotlight area | Diurnal bird survey | Development site boundary |
| Frog transect | SAT survey (centre tree) | |
| Call playback (birds, koala) | Song Meter | |
| Call playback (frogs) | | |



Job number: PR8207
Revision: 0
Author: RM
Date: 01/10/2024



GDA 2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 2020
Units: Meter

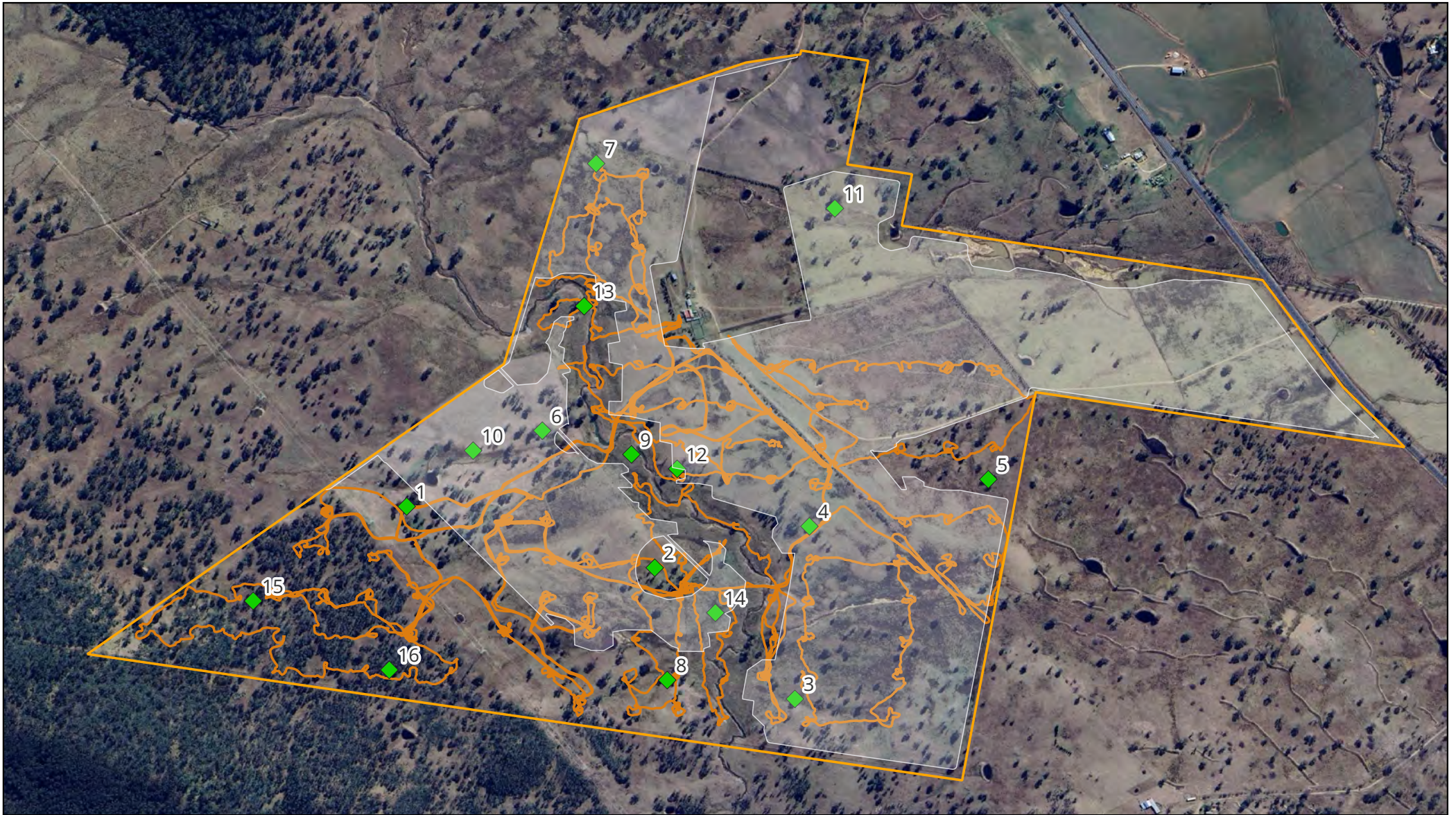


Figure 11: Flora survey effort

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Tilbuster 2 Solar Farm BDAR



4.4 Presence of candidate species credit species

No candidate species were detected during the surveys. One species, southern myotis, has been assumed present and is discussed further below.

Table 11 provides a summary of all candidate species not detected during surveys.

Table 11 Candidate species not detected in surveys

Scientific name	Common name	Survey window	Presence
Fauna			
<i>Adelotus brevis</i>	tusked frog (endangered population)	Oct-Feb	No (surveyed)
<i>Burhinus grallarius</i>	bush stone-curlew	All year	No (surveyed)
<i>Calyptorhynchus lathamii</i>	glossy black-cockatoo (breeding)	Apr-Aug	No (surveyed)
<i>Cercartetus nanus</i>	eastern pygmy-possum	Oct-Mar	No (surveyed)
<i>Haliaeetus leucogaster</i>	white-bellied sea-eagle (breeding)	July-Dec	No (surveyed)
<i>Hieraaetus morphnoides</i>	little eagle (breeding)	Aug-Oct	No (surveyed)
<i>Litoria piperata</i>	peppered tree frog	Oct-Jan	No (surveyed)
<i>Lophoictinia isura</i>	square-tailed kite (breeding)	Sep-Jan	No (surveyed)
<i>Ninox connivens</i>	barking owl (breeding)	All year	No (surveyed)
<i>Ninox strenua</i>	powerful owl	All year	No (surveyed)
<i>Petauroides volans</i>	southern greater glider	All year	No (surveyed)
<i>Petaurus norfolcensis</i>	squirrel glider	All year	No (surveyed)
<i>Phascolarctos cinereus</i>	koala	All year	No (surveyed)
<i>Tyto novaehollandiae</i>	masked owl (breeding)	All year	No (surveyed)
Flora			
<i>Dichanthium setosum</i>	bluegrass	Nov-May	No (surveyed)
<i>Eucalyptus magnificata</i>	northern blue box	All year	No (surveyed)
<i>Eucalyptus nicholii</i>	narrow-leaved black peppermint	All year	No (surveyed)

Southern myotis

Southern myotis is assumed to be present given that the species was recorded adjacent to the development site, during the Tilbuster 1 BAM surveys (NGH 2021) and the continuation of habitat onto the Tilbuster 2 site.

Southern myotis is a typically coastal species, rarely found more than 100 km inland, although the NSW species profile indicates that it is known to occur in the Armidale Plateau (OEH 2024). The species relies on waterbodies for foraging, and roosting habitat includes hollow-bearing trees (HBT) within 200 m of waterbody features. The disturbed nature of the farm dams and Duval Creek in the development site would limit suitability for southern myotis and may only be used as an occasional foraging resource. However, the species was recorded utilising the farm dams on the adjacent property during drought conditions, which may indicate that the habitat within the development site is of increased importance during periods of dry weather.




Species polygon boundaries for southern myotis should align with PCTs on the subject land

to which the species is associated within 200 m of mapped waterbodies (NSW Government 2018c). Southern myotis is not associated with PCT 3352 or PCT 3359 (DCCEEW 2024), consequently the species polygon encompasses all areas of impacted native vegetation within 200 m of Duval Creek and dams (Figure 12).



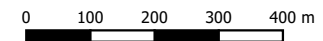
Figure 12: Species polygon for southern myotis

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-  Site boundary
-  Proposed development footprint
-  Southern myotis species polygon (45.2 ha)



Job number: PR8207
Revision: 1
Author: RM
Date: 24/11/2024



GDA 2020 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 2020
Units: Meter

Stage 2: Impact assessment (biodiversity values and prescribed impacts)

5 Avoiding or minimising impacts on biodiversity values during planning

5.1 Avoid or minimise direct and indirect impacts when planning and designing the proposal

The general position for the solar farm extension was selected to target areas of heavily disturbed, agricultural land in the vicinity of the approved Tilbuster 1 site. As well as vegetation, other factors considered were compatibility with existing operations, topography, hydrology and heritage values.

The design process for the proposed extension layout has been iterative and has taken onboard advice from ecologists from an early stage, and following each round of field surveys, as well as incorporating feedback from BCS. This is discussed further below.

5.1.1 Preliminary constraints analysis

A preliminary analysis of biodiversity constraints was undertaken when the general position of the solar farm was initially identified (NGH 2022). The analysis identified, categorised and mapped ecological constraints as follows:

- high constraint areas: potential TEC; occurrence of a SAI candidate PCT; threatened fauna habitat; protected riparian land
- medium – high constraint areas: areas of native vegetation in poorer condition with potential to meet TEC status, and contribute to SAI
- medium constraint areas: areas of degraded native vegetation condition with less understorey
- low constraint areas - historically cultivated areas, exotic dominated paddocks and existing farm tracks.

5.1.2 Detailed vegetation surveys

Detailed vegetation surveys were completed in August 2023, January 2024 and September 2024, with preliminary results and mapping provided to Enerparc following each survey event.

5.1.3 Consultation with BCS

BCS have contributed to the design stage of the project as follows:

- issuing a project specific 'Request for Environmental Assessment Requirements' (BCS 2024a)

- attending a site visit with representatives from Enerparc, GHD and Ecosure, August 2024 to assess preliminary vegetation mapping against on-ground conditions
- issuing pre-lodgment advice (BCS 2024b) related to vegetation mapping and assessment approach.

5.1.4 Outcome

Biodiversity constraints were avoided or minimised as far as practical in the layout design presented in the BDAR by:

- undertaking vegetation mapping in consultation with BCS to ensure accuracy and suitability of mapping to inform avoidance and minimisation strategy
- designing the clearing footprint of the project to avoid areas of EPBC Act listed TEC
- designing the clearing footprint of the project to minimise impacts to areas of BC Act listed TEC
- where impacts to native vegetation are unavoidable, solar panel arrays and ancillary facilities have been located where the native vegetation is in the poorest condition (i.e. areas that have a lower VI score)
- locating solar panel arrays and ancillary facilities primarily on available areas of highly modified, or exempt lands
- designing the clearing footprint of the project to avoid impacts to the protected riparian area of Duval Creek; avoiding the use of bridges by designing access roads that connect to existing tracks in Tilbuster 1
- making provisions for revegetation on the development site, including use of native endemic species (and koala compensatory plantings) in landscaping and restoration of the riparian zone of Duval Creek.

Although not detected during the surveys, the site is assumed to provide habitat for southern myotis, as well as supporting a range of non-listed native fauna species that occur in the local area. The proposed layout retains vegetation that represents habitat for these species. The retained vegetation and avoidance areas:

- maintain connectivity with the vegetation in the north and south, with the Duval Creek riparian zone providing a movement corridor through solar arrays and continuation of movement pathways from Tilbuster 1
- provide potential habitat and maintains transient habitat for threatened species with potential to occur on the site
- provides habitat for numerous other native species.

Table 12 below details strategies and actions to avoid or minimise impacts on biodiversity values during the planning and design phases.

Table 12 Strategies to mitigate impacts on biodiversity values during proposal planning and design

Method	Mitigation
Locate and design the proposal to avoid or minimise direct and indirect impacts on native vegetation, threatened species, TECs and their habitat	
Locating the proposal in areas where there are no biodiversity values	Available areas of cleared pasture and cultivated land have been utilised as much as possible. The proposed development will be located across large areas of category 1 land that has a history of modification and clearing from previous land use.
Locating the proposal in areas where the native vegetation is in the poorest condition	The placement of the development footprint has centred around the areas of lowest biodiversity value within the development footprint boundary (degraded native pastures and degraded native grassland), avoiding larger more intact woodland areas wherever possible, as well as entirely avoiding the 5 th order stream, Duval Creek and it's 50 m riparian zone.
Locating facilities in areas to avoid or minimise direct impacts on biodiversity values	Based on the first BAM principle of 'avoid', the development footprint has been designed to: <ul style="list-style-type: none"> · avoid impacts to Duval Creek and its riparian zone, an area mapped as containing Biodiversity Value and a feature that offers foraging and commuting value to threatened species assumed present on the site · avoid impacts to high conservation status vegetation, including two distinct areas of TEC listed under both the BC Act and EPBC Act, instead utilising more disturbed woodland areas, comprising of scattered paddock trees and smaller isolated patches of woodland.
Locating the proposal in areas that avoid habitat for species that have a high biodiversity risk rating or native vegetation that is a TEC	The development footprint has not been able to completely avoid impacts to CEEC vegetation as most of the vegetation meets the criteria. The placement of the development footprint has centred around the area of lowest biodiversity value (degraded native pastures and degraded native grassland) and aimed to minimise impacts to CEEC and species habitat by avoiding higher quality, more intact remaining vegetation surrounding the development footprint. The development footprint also entirely avoids direct impacts to Duval Creek and its riparian zone, and the potential habitat it offers for threatened species including southern myotis.
Locating the proposal outside important habitat or connectivity features	The proposed locations avoid mapped connectivity corridors and have been centred around the area of least biodiversity impact with the aim to conserve connectivity values. The retained vegetation to the west of the development site presents the highest value connectivity feature for threatened species assumed to be present on the site, as well as other non-threatened species. Within the proposed development footprint, the best connectivity features occur as widely scattered paddock trees with marginal connectivity. Connectivity across the landscape will still occur to the north and south of the development footprint via the retained vegetation to the west, and via the riparian corridor of Duval Creek. Retained patches of vegetation in Zone 1 may also act as stepping stones across the landscape for highly mobile species. Removal of trees through Zones 1,2 and 5 may result in a reduction in east-west connectivity within the development footprint; however, in the context of the wider landscape, this pathway is not significant due to the sparsity of vegetation in the area (Figure 3). The remaining connectivity outside the development footprint is suitable for highly mobile species that will continue to be able to move across the landscape.

Method	Mitigation
<p>Optimise the proposal layout to minimise interactions with threatened entities.</p>	<p>No threatened species were detected during targeted surveys.</p> <p>The placement of the development footprint has centred around the area of lowest biodiversity value (degraded native pastures and degraded native grassland) and avoids good condition woodland (Zone 4) and the riparian zone of Duval Creek, both of which have potential to support threatened species.</p> <p>The design and placement of the solar panel layout has undergone several iterations, to optimise cleared areas and avoid woodland.</p>
<p>Locate subsurface works to avoid and minimise operations beneath habitat features.</p>	<p>Minimal subsurface activities are proposed and will not affect any geological features of significance, groundwater dependent plant communities and their supporting aquifers.</p>

6 Assessing the impacts of the proposal on biodiversity values

6.1 Assessment of prescribed impacts

Prescribed additional biodiversity impacts (prescribed impacts) must be assessed as part of the BOS, as per clause 6.1 of the BC Regulation, including on Category-1 land. Such prescribed impacts (including direct and indirect impacts) are impacts:

- on the habitat of threatened entities including:
 - karst, caves, crevices, cliffs, rocks and other geological features of significance, or
 - human-made structures, or
 - non-native vegetation
- on areas connecting threatened species habitat, such as movement corridors
- that affect water quality, water bodies and hydrological processes that sustain threatened entities (including from subsidence or upsidence from underground mining)
- on threatened and protected animals from turbine strikes from a wind farm
- on threatened species or fauna that are part of a TEC from vehicle strikes.

A review of the likely prescribed impacts of the proposal, including in on Category-1 exempt areas, has been undertaken as described in Table 13. Mitigation measures to address the risk of prescribed impacts are given in Section 6.2.

Table 13 Assessment of prescribed impacts

Prescribed impact	Response
Karst, caves, crevices, cliffs, rocks and other geological features of significance.	There are no Karst, caves, crevices, cliffs or other areas of geological significance within the development site.
Human-made structures and non-native vegetation	Human-made structures are not present in the development site and non-native vegetation in the development site consists of cleared paddocks. No threatened species are considered to rely on the non-native vegetation within the development site.
Habitat connectivity	<p>Areas of connectivity have been identified throughout the development site as shown on Figure 3. Within the development footprint, connectivity is patchy and comprises widely spaced trees and small patches of vegetation. Threatened species may use these habitat corridors. The native vegetation in the development footprint which forms part of the broader connectivity throughout the landscape could be of moderate importance to threatened entities given its proximity to large tracts of native vegetation. However, it is unlikely to be of critical importance given the amount of native vegetation adjacent to the site which also forms part of the connectivity corridor. The avoidance of Duval Creek through Tilbuster 1 and the proposal will maintain this riparian connectivity corridor.</p> <p>The western portion of the development site has good connectivity and is to be retained.</p>
Water bodies, water quality and hydrological processes	The project will not affect water bodies, water quality, or any hydrological processes that sustain threatened entities. Farm dams that may provide low quality foraging opportunities for southern myotis will be removed, however, the proposal avoids

Prescribed impact	Response
	crossing Duval Creek, instead using existing roads/creek crossings within the Tilbuster Stage 1 site to access the western portion of the proposal development. Drainage lines will be impacted but these will not affect any permanent waterbodies. Potential indirect impacts associated with disturbance within the riparian corridor of the aquatic habitats during construction will be managed through erosion and sediment control measures outlined in a Construction Environment Management Plan (CEMP).
Wind farm developments	N/A
Vehicle strikes	<p>High strike risk traffic (speeds >60 km/h) associated with the proposal will be undertaken on existing formed roads and will not increase the risk of vehicle strike beyond that which currently exists.</p> <p>All new roads within the development footprint will be trafficked by maintenance vehicles only, at a slower speed (likely <40 km/h) and will unlikely lead to any increased risk of vehicle strike of fauna.</p> <p>The project will manage vehicle movement through a CEMP including a Traffic Management Plan to facilitate movement associated with the proposal, which should include signage, speed limits and inclusion of traffic management within site inductions for personnel.</p>

6.2 Direct impacts

Impacts to biodiversity values that will result from the construction and operational phases of the proposal are presented in Table 14.

Shading from solar panels is considered a direct impact on the groundcover as most of the development will be used to mount solar panels above the ground. Where solar panels are present, impacts to groundcover are likely to include a change in the species composition and reduced growth rate, as well as impacts from diverted rain runoff including localised erosion and a redistribution of moisture. For the purposes of the BDAR and calculation of offsets, the entire development footprint is cautiously assumed to be entirely removed, even though some degree of ground cover persistence and regeneration is expected to occur.

Table 14 Assessment of direct impacts

Type of impact	Extent	Frequency	Duration /Timing	Consequence	Mitigation
Habitat clearance for permanent and temporary construction	Development footprint	Regular	Construction	<ul style="list-style-type: none"> Direct loss of native flora and fauna habitat including feeding, roosting and breeding resources Injury and mortality of fauna during clearing of fauna habitat and habitat trees Disturbance to stags and fallen timber Change in VI score of native vegetation in development footprint from a maximum of 31.7 to 0. 	<ul style="list-style-type: none"> Clearing is restricted to the development footprint and will generate commensurate credit obligations under the BOS. Compensatory planting for lost koala food trees. Use of native, endemic tree species, including locally important koala trees, for landscaping and screening, as outlined in an approved Landscape Plan.
Displacement of resident fauna	Development footprint	Regular	Construction, operation	<ul style="list-style-type: none"> Direct loss of native fauna Decline in local fauna populations. 	<ul style="list-style-type: none"> Relocation of habitat features such as fallen timber, hollow logs from the impacted area into adjacent retained vegetation. Time clearing works to avoid critical life cycle events such as general breeding activity during late winter/spring. Where practicable, time construction activities outside koala breeding season. If clearing outside of this period cannot be achieved, pre-clearing surveys would be undertaken by an ecologist or suitably qualified person to minimise potential direct impacts to fauna.
Injury or death of fauna	Development footprint	Regular	Construction	<ul style="list-style-type: none"> Direct loss of native fauna Decline in local fauna populations. 	<ul style="list-style-type: none"> Time clearing works to avoid critical life cycle events such as general breeding activity during late winter/spring. Where practicable, hollow-bearing trees would not be removed during breeding and hibernation season (June to January). If clearing outside of this period cannot be achieved, pre-clearing surveys would be undertaken by an ecologist or suitably qualified person to minimise potential direct impacts to fauna.

Type of impact	Extent	Frequency	Duration /Timing	Consequence	Mitigation
					<ul style="list-style-type: none"> Clearing protocols to be implemented, including; preclearing surveys, daily surveys and staged clearing, and the presence of a trained ecological or licensed wildlife handler during clearing events.
Disruption to connectivity	Removal of 63.6 ha of wooded vegetation, permanent fencing	Regular	Construction, long-term	<ul style="list-style-type: none"> Decline in local fauna populations Collision risks to birds and microbats (fencing) Reduced fauna movements across landscape due to fencing. 	<ul style="list-style-type: none"> Use of fauna-friendly fencing to reduce hazards to fauna such as koala and microbats. Fencing adjacent to areas of the development site that are connected to areas of bushland outside the development site are to include koala friendly structures to aid traversal of koala across their range. Measures to improve connectivity between areas of retained vegetation are to be detailed in a Biodiversity Management Plan (BMP).
Removal of habitat features e.g. HBTs, rocky outcrops	141.7 ha (inc. 66 HBT, Appendix 8)	One-off	Construction, long-term	<ul style="list-style-type: none"> Direct loss of native fauna habitat Injury and mortality of fauna during clearing of habitat features. 	<ul style="list-style-type: none"> Relocation of habitat features (fallen timber, hollow logs) from within the development footprint to retained areas within the development site.
Shading by solar infrastructure	141.7 ha	Regular	Operational Phase: long-term	<ul style="list-style-type: none"> Modification of native fauna habitat Modification of habitat beneath array Potential loss of ground cover resulting in unstable ground surfaces and sedimentation of adjacent waterways. 	<ul style="list-style-type: none"> Relocation of habitat features (fallen timber, hollow logs) from within the development footprint to retained areas within the development site. Establish a buffer from the development boundary to Duval Creek to aid in sediment capture. Erosion and sediment control measures to be implemented in line with in an approved CEMP.

6.3 Indirect impacts

Retained native vegetation surrounding the site may be indirectly impacted by:

- soil and water contamination
- barriers to connectivity for fauna
- damage to retained native vegetation
- increased potential of weed and/or pathogen incursion
- increased litter
- generation of dust and noise pollution.

Indirect impacts can occur during both the construction and operation phases. Measures to mitigate and manage indirect impacts on biodiversity values are detailed in Table 15.

Table 15 Assessment of indirect impacts

Type of impact	Duration /Timing	Extent	Frequency	Consequence	Mitigation
Damage to retained native vegetation/habitat (e.g. trampling by site vehicles, footfall, storage, removal of wood, modification of grazing regimes)	During construction	Development footprint, and areas immediately adjacent	Regular	<ul style="list-style-type: none"> Minor direct loss of native flora and fauna habitat Low potential for injury and mortality of fauna during clearing of fauna habitat and habitat trees Minor disturbance to stags and fallen timber Loss of breeding habitat. 	<ul style="list-style-type: none"> AS4970-2009 – Protection of trees on development sites will be implemented in accordance with an approved BMP, ensuring no unapproved impacts are incurred to adjacent native vegetation. Management and monitoring of retained native vegetation adjacent to the site through the development and delivery of a BMP, including protection of areas of TEC Implementation of a Ecological Restoration Plan (ERP) outlining the assisted regeneration of the Duval Creek riparian zone. Clearing protocols are to be implemented that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance. Approved clearing limits to be clearly delineated with temporary fencing or similar prior to construction commencing. No stockpiling or storage within dripline of any mature trees. when clearing adjacent to areas that to be retained, chainsaws will be used rather than heavy machinery to minimise risk of unauthorised or accidental disturbance. Use of fencing to prevent access by grazing sheep to important protection and/or restoration areas, except under strategic grazing regimes specified in an approved ERP to manage groundcover composition and fuel loads.
Reduced viability of retained vegetation due to edge effects	During construction and operation	Areas adjacent to the development footprint	Regular	<ul style="list-style-type: none"> Degradation of retained CEEC Minor loss of native flora and fauna habitat. 	<ul style="list-style-type: none"> As above.
Increased potential of weed and/or pathogen incursion	During construction and operation	Areas adjacent to the development footprint	Sporadic	<ul style="list-style-type: none"> Weed and pathogens to be managed under a BMP during construction and operational phase. 	<ul style="list-style-type: none"> A weed management procedure would be incorporated into an approved Pest and Weed Management Plan (PWMP). The PWMP will detail hygiene protocols to prevent spread of weeds and pathogens, and ongoing weed management protocols and responsibilities during construction and for 5 years following construction. The PWMP will address the management of all incoming vehicles and materials. Weed seed hygiene procedures will be implemented to

Type of impact	Duration /Timing	Extent	Frequency	Consequence	Mitigation
					<p>mitigate the spread of weed seeds on vehicles accessing the site during the construction.</p> <ul style="list-style-type: none"> The PWMP will address ongoing weed management within the retained vegetation, to ensure pest plants are managed in accordance with the <i>Biosecurity Act 2015</i> Australian Weeds Strategy 2017-2027 and local priorities.
Soil and water contamination	During construction and operation	Areas adjacent to the development footprint	Sporadic	<ul style="list-style-type: none"> Pollution of waterways Reduction in habitat suitability for aquatic species. 	<ul style="list-style-type: none"> A buffer will exist between the infrastructure and the Creek, comprising the 40m riparian zone. Installation of temporary fencing to protect the Duval Creek riparian zone. An erosion and sediment control plan would be prepared in conjunction with the final design and implemented. Sediment barriers or sedimentation ponds to control the quality of water released from the site into the receiving environment. Spill management procedures would be implemented.
Increased anthropogenic waste	During construction and operation	Areas adjacent to the development footprint	Sporadic	<ul style="list-style-type: none"> Harm to fauna that ingest or are entrapped by litter. Persistence in the environment. 	<ul style="list-style-type: none"> Waste management procedures will be outlined in a CEMP.
Generation of dust and noise pollution resulting in reduced habitat suitability in retained vegetation	During construction (dust and noise) During operation (noise)	Noise and dust likely to carry further than 10 m from development footprint	Regular	Temporary loss of foraging or breeding habitat and altered fauna activities and/or movements.	<ul style="list-style-type: none"> CEMP will include measures to avoid noise encroachment on adjacent habitats and an adaptive dust monitoring programs to control air quality. Noise barriers or daily/seasonal timing of construction and operational activities to reduce impacts of noise. No night works are currently proposed. If this changes, measures to reduce/limit light pollution into retained vegetation must be implemented, including directional lighting and screening, as appropriate.
All	During construction and operation	Development site	Ongoing	N/A	<ul style="list-style-type: none"> Preparation of a CEMP, BMP, ERP and PWMP. Staff training, site inductions and site briefing must be undertaken to communicate environmental features to be protected and measures to be implemented. Site speed limits to be enforced to minimise fauna strike, outlined in a Construction Traffic Management Plan.

6.4 Impacts to MNES

A MNES TEC is present on the site (40.1 ha, Figure 9) but has been avoided by the development footprint. Mitigation measures are proposed to avoid direct and indirect impacts to the retained vegetation during the construction and the operation phase, including vegetation and habitat management and erosion and sediment control.

Targeted surveys were conducted for five MNES species between August 2023 and January 2024, these species are discussed below.

- Koala (endangered) - koala records are present within 5 km of the development site (OEH 2024a); however the results of targeted surveys did not identify any koala activity within the boundaries of the development site. The development site contains known koala food trees including primary species: Blakely's red gum, apple box, New England stringybark in Zones 1-6, although historical clearing and modification of the land has resulted in koala food trees being sparsely distributed in the majority of the site. It is possible that koala occasionally utilise the development site for infrequent foraging and for commuting between other areas of habitat in the broader area. To the west of the development site where vegetation has been less disturbed (including Zone 4), the suitability of habitat for koala is expected to be higher. The development will result in the loss of a number of koala food trees and potential traversal habitat, however the habitat represented within the development footprint is not considered to be critical for the survival of the local koala population (such that loss would lead to a decrease in population size, reduce area of occupancy, disrupt breeding cycles, introduce disease, or interfere with recovery) given the lack of evidence of use and the availability of higher quality habitat in the surrounding area.
- Greater glider (endangered) – greater glider records are also present within 5 km of the development site (OEH 2024a, NGH 2021, Emerson 2019)) however this species was not identified during targeted surveys and the habitat is sub optimal within the development footprint. The species has a low ability to disperse between fragmented vegetation in cleared areas and typically occupies small home ranges of 1 to 4 (DCCEEW-C 2022). Suitable habitat within the development site is restricted to the closed woodland (Zone 4) in the western section of the site which is to be retained. Although HBT will be removed within the development footprint, these are located in areas of open woodland that represent poor quality local habitat and are unlikely to be utilised by greater glider.
- Peppered tree frog (vulnerable) – peppered tree frog is known to occur in the New England Tablelands, associated with rocky streams, but has not been recorded for over 30 years. It was not detected during targeted surveys, therefore is not expected to occur in the subject land or be impacted by the proposal.
- Blue grass (vulnerable) – blue grass does not occur within the subject land, therefore will not be impacted by the proposal.
- Narrow-leaved black peppermint (vulnerable) - narrow-leaved black peppermint does not occur within the subject land, therefore will not be impacted by the proposal.

6.5 Mitigating and managing impacts

A summary of the key measures required to mitigate the direct and indirect impacts of the proposal are provided below.

- time works to avoid critical life cycle events

- implement clearing protocols during tree clearing works, including pre-clearing surveys, daily surveys and staged clearing, along with the presence of a trained ecological or wildlife handler
- relocate habitat features (fallen timber, hollow logs) from within the development site to an adjacent area of retained native vegetation under the supervision and direction of an ecologist
- identify vegetation to be retained to prevent inadvertent damage and reduce soil disturbance; for example, removal of native vegetation by chainsaw, rather than heavy machinery, is preferable in situations where partial clearing is proposed
- high-visibility temporary fencing to protect significant environmental features and threatened species habitat
- hygiene protocols to prevent the spread of weeds or pathogens between infected areas and uninfected areas
- staff training and site briefing to communicate environmental features to be protected and measures to be implemented
- implementation of a BMP to actively manage and improve retained native vegetation and protect native fauna
- sediment barriers and spill management protocols to control the quality of water runoff from the site into the receiving environment
- enforce speed limits and install signage during construction to reduce impacts of vehicle strikes on fauna
- clearly survey and mark environmental no-go areas during construction to prevent clearing within unauthorised areas and where threatened species habitat occurs
- fencing to deter koala from entering the development site during construction
- use of fauna-friendly fencing for permanent fencing
- implementation of a ERP to revegetate areas of the development site and restore the riparian zone of Duval Creek
- implementation of an PWMP to manage the occurrence of priority weeds and pest species across the site
- use of native, endemic species, using koala food trees wherever possible, for all landscaping and visual screening
- implementation of a CEMP to manage impacts from construction related to erosion and sediment control, traffic, waste, noise and air pollution
- implementation of an Operational Management Plan that outlines the monitoring and maintenance of weed and pathogen occurrence, planting and restoration areas for the life of the proposal.

6.6 Adaptive management for uncertain biodiversity impacts

The following management plans (Table 16), subject to approval conditions, will outline an adaptive management strategy with the aim of improving the condition and ecological function of retained vegetation (including the TECs), and monitoring and responding to impacts to biodiversity values, including impacts that are uncertain.

Monitoring and adaptive management protocols will be implemented in accordance with the approved plans to ensure that any deviation from expected outcomes is detected and

appropriate corrective measures applied.

Table 16 Management Plans to be implemented

Management Plan	Timing	Inclusions
BMP	Before and during construction , decommissioning	<ul style="list-style-type: none"> · best practice removal and disposal of vegetation, including retention of habitat features · fauna management protocols, including timing for clearing activities, ecological supervision requirements, and reporting of mortalities · unexpected threatened species finds procedure · measures to protect the vegetation and fauna habitat outside the approved development footprint areas · active management of all retained vegetation and fauna habitat within the development site, including weed control, revegetation of retained areas, restoration of the riparian zone, and habitat enhancement such as fauna nest box installation · fauna and flora monitoring criteria · clear performance targets · corrective actions, including triggers and responses · BMP review and improvement process · timing and responsibilities.
PWMP	Before and during construction, operation, decommissioning	<ul style="list-style-type: none"> · management action for the control of priority weeds, pathogens and pest species across the site · development in accordance with Commonwealth, state and local guidance · maintenance and monitoring plan for five years post construction · clear performance targets · corrective actions, including triggers and responses · PWMP review and improvement process · timing and responsibilities.
ERP	Before and during construction, operation, decommissioning	<ul style="list-style-type: none"> · activities to revegetate the riparian zone where appropriate with endemic native species · fencing to exclude stock from riparian zone · weed control measures · long term erosion control measures · maintenance and monitoring plan for five years post construction · clear performance targets · corrective actions, including triggers and responses · ERP review and improvement process · timing and responsibilities.
Construction Traffic Management Plan	Before and during construction	<ul style="list-style-type: none"> · measures to minimise the likelihood of vehicle strike during construction, including reduced speed, restricted movement at dusk and dawn, and protocols for actions if native animals are hit by vehicles.
Landscape Plan	During construction	<ul style="list-style-type: none"> · The Landscape Plan for the proposal would incorporate use of native, endemic species only, including, in particular, koala trees to compensate for those removed.
Operational	Operation	The Operational Management Plan for the proposal will include the

Management Plan	Timing	Inclusions
Management Plan		following for the life of the proposal: <ul style="list-style-type: none"> · monitoring and maintenance of planting and restoration areas · monitoring and treatment of weeds and pathogens.

7 Thresholds for assessing and offsetting the impacts of development

7.1 Serious and Irreversible Impacts

This section documents the additional impacts assessment provisions for TEC at risk of SAI. One BC Act TEC listed as a SAI entity will be impacted by the proposal: White Box-Yellow Box-Blakely's Red Gum Woodland and Derived Native Grassland (Box-Gum Woodland CEEC).

Detailed consideration of impacts to this TEC in line with the DCCEEW 'Guidance to assist a decision-maker to determine a SAI' (DPIE 2019) has been outlined below (Table 17).

Table 17 Impact assessment provisions for the Box-Gum Woodland CEEC

Assessment criteria (DPIE 2019)	Comments
a) the action and measures taken to avoid the direct and indirect impact on the potential entity for an SAI	<p>Up to 116.53 ha of Box-Gum Woodland CEEC occurs within the development site. This occurs as four condition states:</p> <ul style="list-style-type: none"> Zone 1 – degraded open woodland with a grazed understorey (43.45 ha) Zone 2 - open woodland with predominantly exotic understorey subject to cultivation (33.60 ha) Zone 3 – degraded treeless areas with mixed native and exotic grazed understorey (12.85 ha) Zone 4 – good condition closed woodland with mixed native and exotic understorey (26.64 ha). <p>The proposal will directly impact 49.78 ha (or 42.72 %) of the Box-Gum Woodland CEEC on site, however has been designed to avoid the areas of highest ecological condition.</p> <p>Indirect impacts have been identified and will be managed according to the measures outlined in Section 6.</p>
b) the area (ha) and condition of the TEC to be impacted directly and indirectly by the proposed development. The condition of the TEC is to be represented by the vegetation integrity score for each vegetation zone	<p>The area and condition of TEC to be directly impacted is:</p> <ul style="list-style-type: none"> Zone 1: 20.82 ha, VI score 25.9 Zone 2: 23.29 ha, VI score 15.8 Zone 3: 5.67 ha, VI score 7.3. <p>The highest quality area of CEEC (Zone 4, 26.64 ha, VI score 77.3) will be retained in its entirety, and managed to avoid indirect impacts.</p>
c) a description of the extent to which the impact exceeds the threshold for the potential entity that is specified in the Guidance to assist a decision-maker to determine a SAI	<p>No threshold has been defined by DCCEEW for the extent of Box-Gum Woodland CEEC to be removed that would constitute a SAI.</p>
d) the extent and overall condition of the potential TEC within an area of 1,000 ha, and then 10,000 ha, surrounding the proposed development footprint	<p>There is no data available to assess the likely extent or condition of the CEEC in the wider area.</p> <p>A review of the SVTM identified 251 ha of PCTs associated with the Box-Gum Woodland within the 1,000 ha surrounding the development site (25.1%), and 1,172 ha within the 10,000 ha (17.1%) surrounding the development site.</p> <p>In the broader area surrounding the development site, Box-Gum Woodland CEEC is likely to have been significantly modified and</p>

Assessment criteria (DPIE 2019)	Comments
	<p>degraded due to human land use, resulting in a poorer condition particularly in more fertile and accessible areas that have been favored for agricultural practices. The CEEC is likely to occur in a higher condition state in areas more isolated or where elevation or terrain decreases the likelihood of anthropogenic disturbance.</p>
<p>e) an estimate of the extant area and overall condition of the potential TEC remaining in the IBRA subregion before and after the impact of the proposed development has been taken into consideration</p>	<p>SVTM available for the Armidale Plateau IBRA Subregion indicates that over 50,000 ha of Box-Gum Woodland CEEC could occur within the mapped area, with a further 50,000 ha mapped as derived grasslands, some of which could represent Box-Gum Woodland CEEC in a treeless form, as allowed by the NSW Scientific Communities final determination (NSWSC 2011). The 47.17 ha that would be removed for the proposal equates to less than 0.1% of the estimate above.</p>
<p>f) an estimate of the area of the potential TEC that is in the reserve system within the IBRA region and the IBRA subregion</p>	<p>A paucity in information means a reliable estimate cannot be made. Review of plans of management for reserves within the IBRA and region and sub-region were reviewed. Plans on Management associated with the following reserves do not identify Box-Gum Woodland:</p> <ul style="list-style-type: none"> · Duval Nature Reserve · Oxley Wild Rivers National Park · Avondale State Conservation Area. <p>Plans of Managements for the Imbota Nature Reserve and Yina Nature Reserve state that Red-Gum Yellow-Box Grassy Woodlands occurs within each reserve, however no indication of area is given.</p>
<p>g) the development, clearing or biodiversity certification proposal's impact on:</p> <ul style="list-style-type: none"> · abiotic factors critical to the long-term survival of the potential TEC; for example, how much the impact will lead to a reduction of groundwater levels or the substantial alteration of surface water patterns 	<p>The proposal will have minimal impact on groundwater, with no interaction or extractions planned. Potential impacts to groundwater during the construction phase may include issues related to sediment, erosion and other pollution, however these risks will be short-term, localised and managed through implementation of a CEMP. As such, there is not expected to be an impact on abiotic factors critical to the long-term survival of the CEEC.</p>
<ul style="list-style-type: none"> · characteristic and functionally important species through impacts such as, but not limited to, inappropriate fire/flooding regimes, removal of understorey species or harvesting of plants 	<p>Within the development footprint, the proposal will result in the direct loss of functionally important mature trees, including hollow bearing trees, that provide foraging and roosting opportunities for fauna species associated with the TEC.</p> <p>The proposal will not introduce fire or flooding regimes to the site, nor harvesting of plants, nor result in an increase of natural occurrences of these events.</p> <p>With implementation of CEMP and a BMP, the proposal will not result in impacts to characteristic and functionally important species in the retained CEEC areas.</p>
<ul style="list-style-type: none"> · the quality and integrity of an occurrence of the potential TEC through threats and indirect impacts including, but not limited to, assisting invasive flora and fauna species to become established or causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants which may harm or inhibit growth of species in the potential TEC 	<p>It is likely the 66.75 ha of Box-Gum Woodland CEEC retained within the development site would remain unchanged from the current existing condition. Measures to protect the integrity of retained TEC during construction and throughout the operational phase will be outlined in a CEMP and BMP.</p>
<p>h) direct or indirect fragmentation</p>	<p>The Box-Gum Woodland CEEC within the development site and</p>

Assessment criteria (DPIE 2019)	Comments
and isolation of an important area of the potential TEC	<p>adjacent landscape has been subject to historical clearing to support agricultural land use.</p> <p>The intact vegetation at the western end of the development site and beyond is likely an important connectivity corridor and is maintained. Retained patches of CEEC also provide connection east to west.</p> <p>Higher condition areas have been avoided by the development footprint and connectivity of more intact areas has been maintained via maintaining the north-south connection that is present. The proposal is not considered to fragment or isolate an important area of the TEC.</p>
i) the measures proposed to contribute to the recovery of the potential TEC in the IBRA subregion	<p>The 49.78 ha of Box-gum Woodland CEEC to be removed by the proposal would be offset by the retiring of 788 ecosystem credits ensuring no net loss.</p> <p>Retained Box-gum Woodland CEEC within the development site, of which there is 66.75 ha, would be managed in accordance with the BMP.</p>

8 Offset requirement

8.1 Offset requirement for direct impacts

The results of the assessment are summarised in the Credit Summary Report (Appendix 10) and like-for-like credit retirement options are outlined in the Biodiversity Credit Report (Appendix 11). Scattered Tree credit reports are provided as Appendix 12.

8.1.1 Ecosystem credits

An offset is required for all impacts of development on PCTs that are associated with:

- a) a vegetation zone that has a vegetation integrity score ≥ 15 where the PCT is representative of an endangered or critically endangered ecological community, or
- b) a vegetation zone that has a vegetation integrity score of ≥ 17 where the PCT is associated with threatened species habitat (as represented by ecosystem credits), or is representative of a vulnerable ecological community, or
- c) a vegetation zone that has a vegetation integrity score ≥ 20 where the PCT is not representative of a TEC or associated with threatened species habitat.

The PCTs and vegetation zones requiring offset and the ecosystem credits required are documented in Table 18 and mapped on Figure 6.

Table 18 Plant community types requiring offset and the number of ecosystem credits

PCT ID	PCT Name	Total Area	Zones	Sensitivity to gain	Biodiversity risk rating	Ecosystem credits required
3352	Armidale Quartz Hills Stringybark Forest	13.9	5	High Sensitivity to Gain	2.5	220
3359	New England Hills Stringybark-Box Woodland	49.8	1-3	Very High Sensitivity to Gain	2.5	568
Total						788

8.1.2 Scattered tree module

In accordance with BAM Appendix C, eight ecosystem credits are required to offset the clearing of nine Class 3 scattered trees (Table 19). PCT 3359 has been nominated as the relevant credit profile given that the trees to be cleared are all species associated within this PCT.

Table 19 Scattered tree ecosystem credit requirements

Hollows present	Number of Class 3 trees (over large tree benchmark)	Ecosystem credits required per tree	No of PCT 3359 ecosystem credits generated
No	7	0.75	6
Yes	2	1	2
Total			8

8.1.3 Planted native vegetation

In accordance with BAM Appendix D, no offsets are required for the planted native vegetation that will be impacted by the proposal as there was no evidence that it supported threatened species.

8.1.4 Species credits

A total of 475 species credits are required to offset impacts to southern myotis (Table 20).

Table 20 Species requiring offset and the number of species credits

Species name	Scientific name	Total area (ha)	Sensitivity to loss	Biodiversity risk rating	Ecosystem credits required
southern myotis	<i>Myotis macropus</i>	Total: 45.2 Zone 1: 8.2 Zone 2: 18.8 Zone 3: 5.5 Zone 5: 12.6	Moderate Sensitivity to Loss	2	475

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Appendix 1 Details and experience of authors and contributors







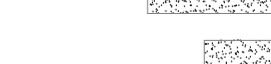




Name	BAM Assessor Accreditation no.	Position	Tasks performed	Relevant qualifications
Jennifer Timbs	BAAS24012	Ecologist	Vegetation surveys, targeted threatened flora and fauna surveys, report and figure preparation, BDAR certification	BSc
Ziggy Andersons	BAAS17103	Senior Ecologist	Technical support, report input	BSc
Sally Cooper	BAAS18116	Principal Ecologist	Vegetation surveys, technical input, report review	BEnvSc, MSc
Leigh Knight	-	Principal Environmental Planner	Report review	BSc
Mervyn Mason	-	Principal Ecologist	Targeted threatened fauna surveys (frogs, birds)	BSc, MSc
Rachel McBride	-	Senior Ecologist	Report and figure assistance, targeted threatened fauna surveys	BSc
Dr Natalie Freeman	-	Senior Ecologist	Targeted threatened fauna surveys (mammals, birds)	BSc, MSc, PhD
Jordan Peppin	-	Ecologist	Targeted threatened fauna surveys and vegetation surveys.	BSc

Curriculum vitae are available on request.

Appendix 2 Master Plan (development and construction footprint)



Legend

-  Planned Fence Positionline (h=2m), Length appr.: 6.770m
-  Legal Construction Boundaries
-  Gate
-  Gate (6m) Anzahl: pcs.
-  Planned Entrance
-  Construction and Maintenance Roads, Area appr.: m²
-  Crane Area 10m² x 10m², Total Area appr.: m²
-  Facilities for constructional purposes
-  Transformer / Substation / Counting / Gridconnection
-  Monitoring Container
-  Module-Table

Overall PV- Power Plant Name: PV Tilbuster Stage 2

Total Amount Modules: 126896 Pcs.

DC-Total Power: approx. 85000 kWp (670Wp)

AC-Total Power: 59040 kVA

DC- Capacity at Connection: kWp

AC- Capacity at Connection:

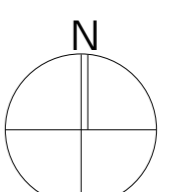
Transformerstation Amount:

Power:

Subcontraction

Module inclination: 1 P Tracker

Distance between rows: 7.1 m



Preliminary Modulayout

Builder:	Date:	Name:	General contractor:
Enerparc Australia LTD.	24.06.12	MMG	ENE
Editor:	Check:	Approved:	Norm:
Address: Zirkusweg 2 / Asta Tower			Scale: no scale
Address: 20359 Hamburg (Germany)			
Telephone: +49 40 756 644 9-0			
Fax: +49 40 756 644 9-65			Drawing No. 0-1
Project: PV Tilbuster 2 (85MWp)			
Modulelayout			
Index Modification:	Date:	Name:	Path:

Appendix 3 Draft native vegetation regulatory map

Draft native vegetation regulatory map

Legend

-  Cadastre
 -  Local Land Services Regions
 -  Local Government Area
 -  Werriwa & Monaro CEEC Advisory Layer
 -  Land excluded from LLS Act
- Draft native vegetation regulatory map**
-  Category 1-exempt land
 -  Category 2-regulated land
 -  Category 2-vulnerable regulated land
 -  Category 2-sensitive regulated land
 -  Category 2-sensitive and vulnerable regulated lands areas of overlap

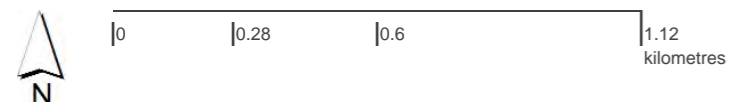
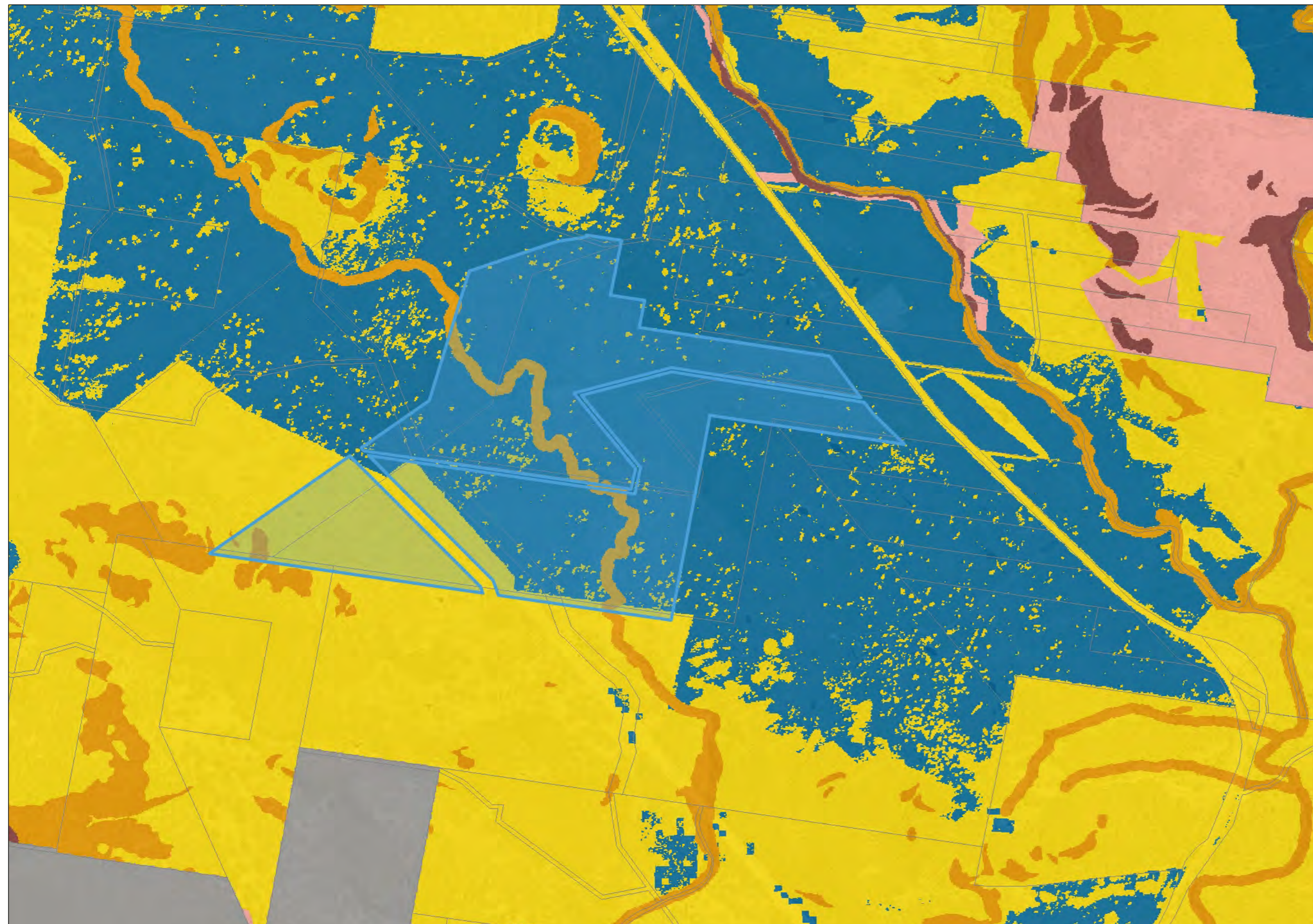
The draft native vegetation regulatory map is prepared by the Department of Planning and Environment under Part 5A of the Local Land Services Act.

Mapping of category 2–vulnerable and category 2-sensitive regulated lands was published on 25 August 2017 and is in-force.

Mapping of category 1–exempt and category 2-regulated lands was published on 26/03/2024 and will remain draft until a final map is published

The NVR Map is updated from time to time. This extract was current as at the date stamp displayed below the map image.

Imagery © Department of Customer Service 2020



Map extract date: 29-May-2024

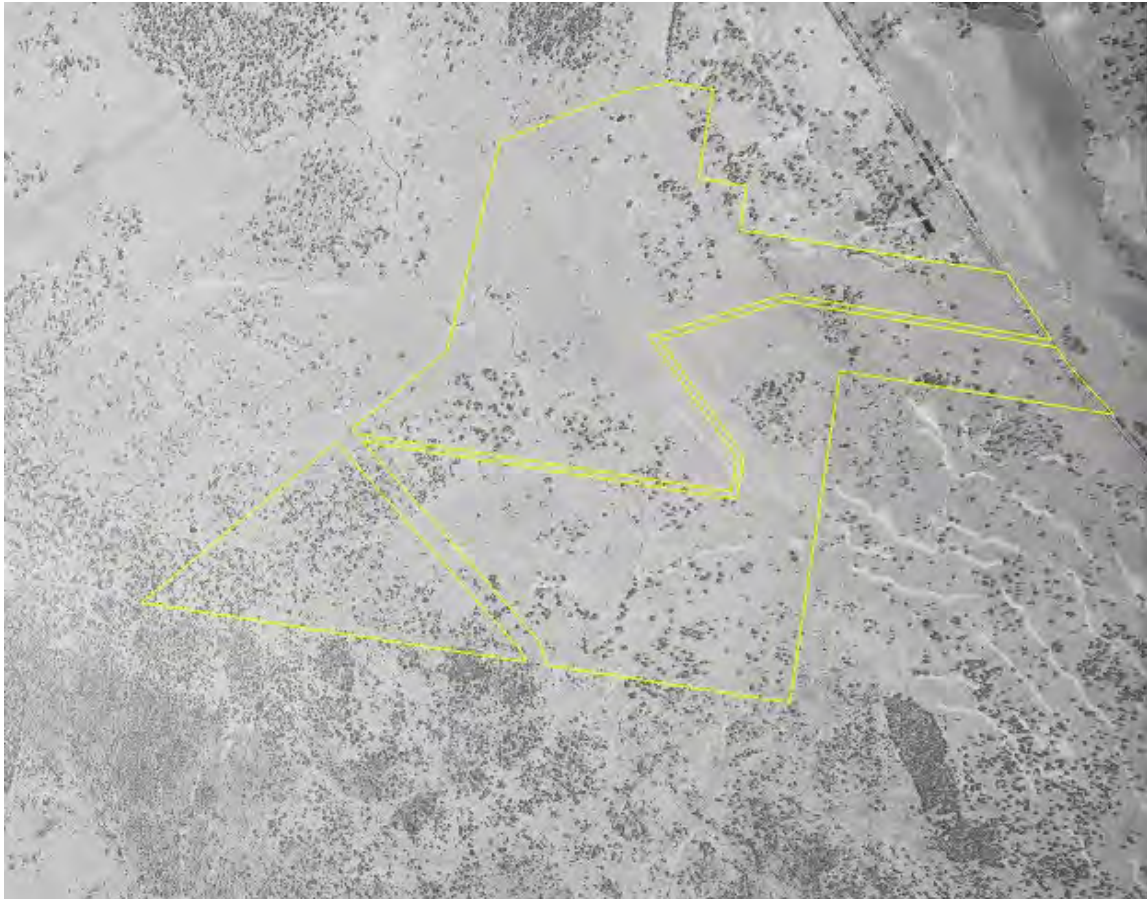
If you require further information, would like a Category Explanation Report or wish to enquire about a Map Review please contact us at map.review@environment.nsw.gov.au

Appendix 4 Category-1 land assessment

The draft Native Vegetation Regulatory (NVR) map was last updated on 26 March 2024 and shows the majority of the development site mapped as Category 1 - exempt land (Appendix 3).

The following table outlines the justification to categorise 108.16 ha of land within the development site (Figure 7) as 'Category 1 – exempt land'. This 108.16 ha area is hereafter referred to as the 'proposed exempt land'.

Exempt land (Category 1) definition <i>As per Local Land Services Act 2013</i>	Relevance to subject land
Land cleared of native vegetation as at 1 January 1990 or lawfully cleared after 1 January 1990	<p>Aerial imagery shows that the land has been cleared prior to 1 January 1990 and that the land has been under regular cropping, grazing and/or cultivation since this date. Images showing the extent of clearing in 1989 and 1995 are provided below.</p> <p>Recent aerial images provided throughout this report show that agricultural use of the land has been consistent in recent years, further evidenced by:</p> <ul style="list-style-type: none"> - NSW Land Use 2017 mapping identifies the proposed exempt land as grazing modified pastures (category 3.2.0) (DCCEEW 2019). - NSW Land Use 2013 mapping (DCCEEW 2017) identifies the proposed exempt land as a combination of: <ul style="list-style-type: none"> - grazing modified pastures (category 3.2.0) - cropping (3.3.0) - grazing native vegetation (2.1.0) - residential and farm structure (5.4.0).
Low conservation grasslands	<p>Field surveys confirmed that no threatened entities (communities, populations or species) are present within the proposed exempt land; and that species cover is predominantly non-native.</p>
Land containing only low conservation groundcover (not being grasslands)	<p>Floristic assessment (including a BAM plot and observation points) found exotic species dominated the groundcover within proposed exempt land, and only a low number of native species were noted. Native <i>Juncus</i> spp. and <i>Cyperus</i> spp. occur as the only species with any significant cover.</p> <p>Any areas with a predominantly (i.e. >50%) native cover, or that contained native paddock trees, or that included groundcover species that are indicative of the White Box - Yellow Box – Blakely's Red Gum Grassy Woodland TEC were excluded from proposed exempt land mapping (NSW Threatened Species Scientific Committee 2020).</p> <p>Recent pasture improvement activity was evident where rip lines were still present on the ground surface.</p>
Native vegetation identified as regrowth in a Property Vegetation Plan under the <i>repealed Native Vegetation Act 2003</i> only where the Property Vegetation Plan specifies a regrowth date.	N/A
Land bio-certified under the <i>Biodiversity Conservation Act 2016</i>	NA



Imagery from November 1995 with Lot boundary overlay (NSW Spatial services 2024c)



Imagery from 1989 (partial) with Lot boundary overlay (NSW Spatial services 2024c)



Photo showing Category 1 – exempt land in the foreground (below red dashed line) and native *Juncus* dominated PCT 3352 in the background.



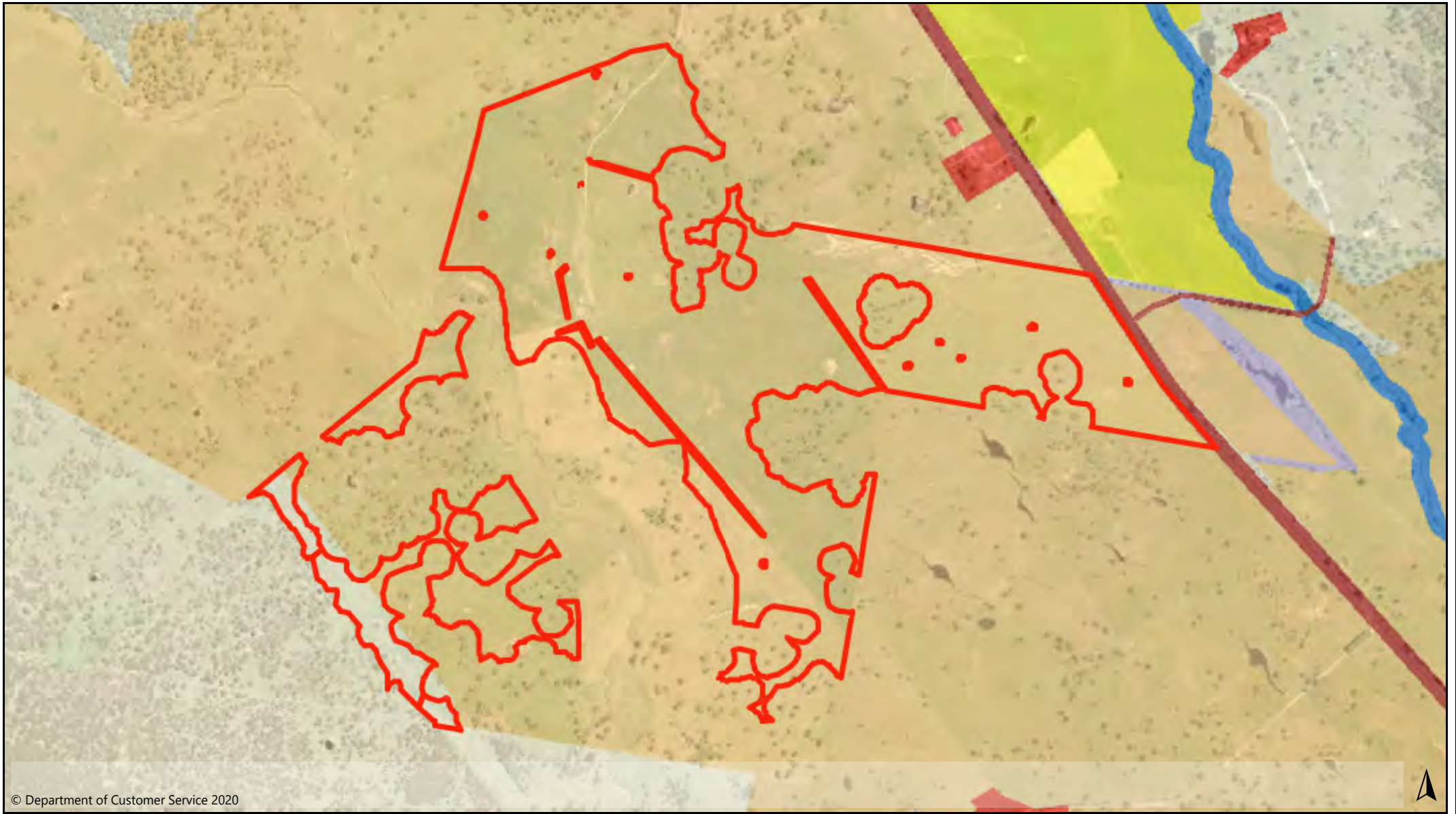
Photo showing Category 1 – exempt land with evidence of recent tilling



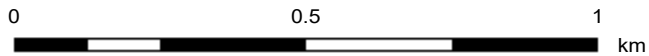
Photo showing Category 1 – exempt land with evidence of recent tilling



Photo of non-native *Sporobolus* dominated Category 1 – exempt land



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Notes



























Red line boundary : Tilbuster 2 BDAR Vegetation Zone 8
(Category 1 - exempt land)







Legend

VegZone_Zone 8.zip

NSW Landuse 2017

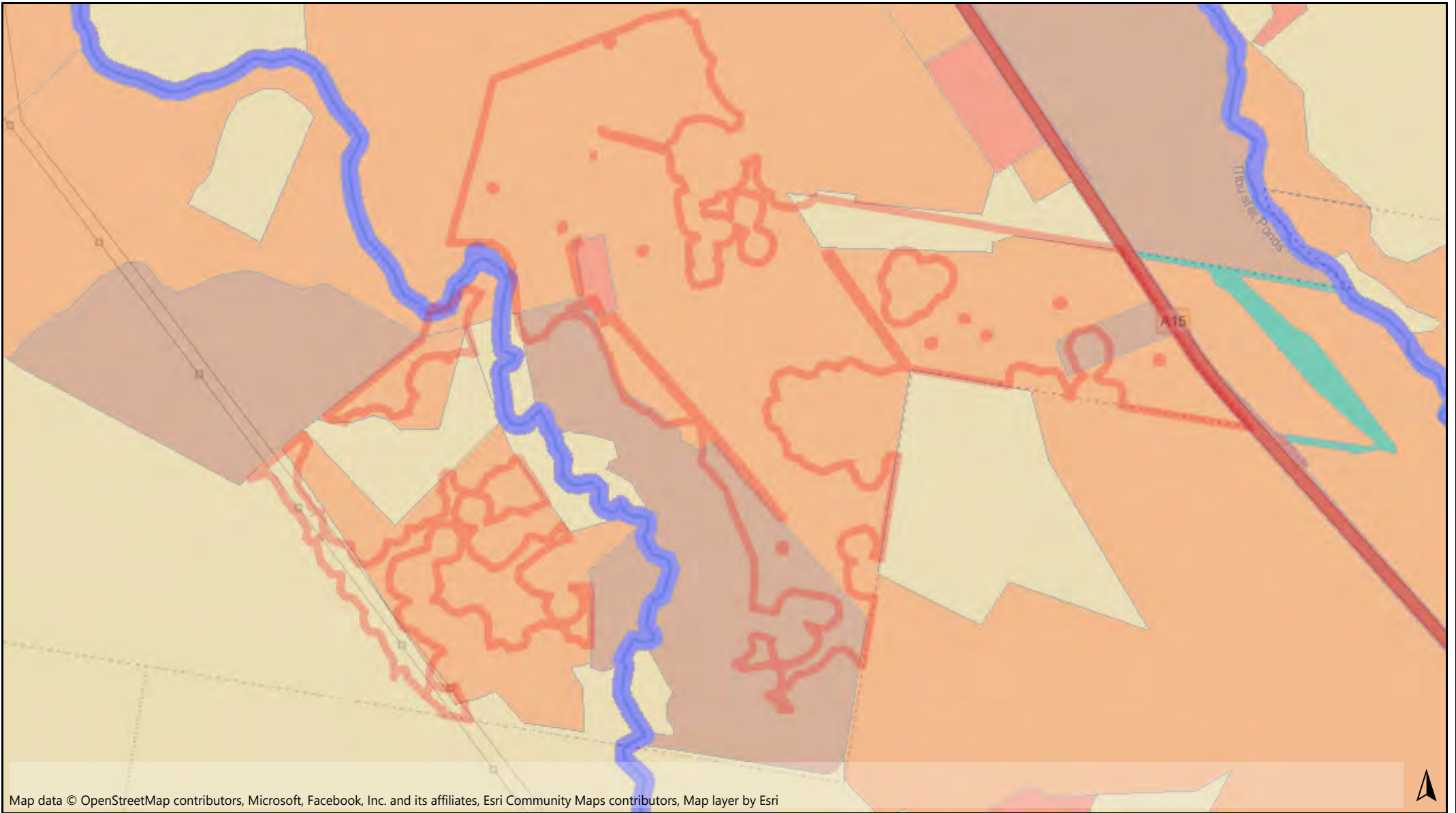
NSW Landuse 2017

-  1.1.0 Nature conservation
-  1.2.0 Managed resource protection
-  1.3.0 Other minimal use
-  2.1.0 Grazing native vegetation
-  2.2.0 Production native forestry
-  3.1.0 Plantation forests
-  3.2.0 Grazing modified pastures
-  3.3.0 Cropping
-  3.4.0 Perennial horticulture
-  3.5.0 Seasonal horticulture
-  3.6.0 Land in transition
-  4.1.0 Irrigated plantation forests
-  4.2.0 Grazing irrigated modified pastures
-  4.3.0 Irrigated cropping
-  4.4.0 Irrigated perennial horticulture
-  4.5.0 Irrigated seasonal horticulture
-  4.6.0 Irrigated land in transition
-  5.1.0 Intensive horticulture
-  5.2.0 Intensive animal production
-  5.3.0 Manufacturing and industrial
-  5.4.0 Residential and farm infrastructure
-  5.5.0 Services
-  5.6.0 Utilities
-  5.7.0 Transport and communication
-  5.8.0 Mining
-  5.9.0 Waste treatment and disposal

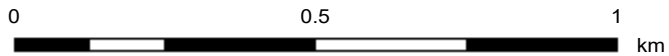
-  6.1.0 Lake
-  6.2.0 Reservoir/dam
-  6.3.0 River
-  6.4.0 Channel/aqueduct
-  6.5.0 Marsh/wetland
-  6.6.0 Estuary/coastal waters



Lot 4 DP800611 Land Use 2013



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THIS MAP IS NOT TO BE USED FOR NAVIGATION

Notes
























Red line boundary : Tilbuster 2 BDAR Vegetation Zone 8 (Category 1 - exempt land)

Legend

VegZone_Zone 8.zip

NSW Landuse 2013

NSW Landuse 2013

- | | |
|---|--|
|  1.1.0 Nature conservation |  6.1.0 Lake |
|  1.2.0 Managed resource protection |  6.2.0 Reservoir/dam |
|  1.3.0 Other minimal use |  6.3.0 River |
|  2.1.0 Grazing native vegetation |  6.4.0 Channel/aqueduct |
|  2.2.0 Production forestry |  6.5.0 Marsh/wetland |
|  3.1.0 Plantation forestry |  6.6.0 Estuary/coastal waters |
|  3.2.0 Grazing modified pastures |  9.1.0 Protected lands |
|  3.3.0 Cropping |  9.9.9 Excluded areas |
|  3.4.0 Perennial horticulture |  Not Entered |
|  3.5.0 Seasonal horticulture | |
|  3.6.0 Land in transition | |
|  4.1.0 Irrigated plantation forestry | |
|  4.2.0 Grazing irrigated modified pastures | |
|  4.3.0 Irrigated cropping | |
|  4.4.0 Irrigated perennial horticulture | |
|  4.5.0 Irrigated seasonal horticulture | |
|  4.6.0 Irrigated land in transition | |
|  5.1.0 Intensive horticulture | |
|  5.2.0 Intensive animal husbandry | |
|  5.3.0 Manufacturing and industrial | |
|  5.4.0 Residential and farm infrastructure | |
|  5.5.0 Services | |
|  5.6.0 Utilities | |
|  5.7.0 Transport and communication | |
|  5.8.0 Mining | |
|  5.9.0 Waste treatment and disposal | |

Appendix 5 Floristic vegetation survey summary of results

Plot 1 (Zone 2)

Latitude 151.6606207, Longitude -30.38982862

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Eucalyptus bridgesiana</i>	apple box	Upper	N	5	1
<i>Cyperus gracilis</i>	slender flat-sedge	Ground	N	30	2000
<i>Dactylis glomerata</i>	sown pasture grass - no fertile parts	Ground	E	15	1000
<i>Chrysocephalum apiculatum</i>	common everlasting	Ground	N	0.2	100
<i>Crassula sieberiana</i>	-	Ground	N	0.2	50
<i>Trifolium subterraneum</i>	-	Ground	E	0.2	30
<i>Trifolium repens</i>	-	Ground	E	0.2	50
<i>Trifolium vesiculosum</i>	-	Ground	E	0.1	10
<i>Lissanthe strigosa</i>	peach heath	Ground	N	0.1	5

Plot 1 photo:



Plot 2 (Zone 1)

Latitude 151.6664237, Longitude -30.39126219

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Eucalyptus bridgesiana</i>	apple box	Upper	N	5	2
<i>Eucalyptus blakelyi</i>	Blakely's Red Gum	Upper	N	5	2
<i>Cyperus gracilis</i>	slender Flat-sedge	Ground	N	40	2000
<i>Juncus usitatus</i>	common rush	Ground	N	0.5	50
<i>Cirsium vulgare</i>	spear thistle	Ground	E	0.5	50

Plot 2 photo:



Plot 3 (Zone 1)

Latitude 151.6697028, Longitude -30.39432979

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Eucalyptus blakelyi</i>	Blakely's Red Gum	Upper	N	10	2
<i>Cyperus gracilis</i>	slender flat-sedge	Ground	N	10	500
<i>Juncus usitatus</i>	common rush	Ground	N	5	100
<i>Poaceae</i>	-	Ground	N	5	500
<i>Juncus spp.</i>	a rush	Ground	N	0.5	50
<i>Hypochaeris radicata</i>	-	Ground	E	0.2	10
<i>Haloragis heterophylla</i>	-	Ground	N	0.1	100

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Bulbine alata</i>	native onion	Ground	N	0.1	1
<i>Plantago muelleri</i>	-	Ground	N	0.1	10
<i>Chrysocephalum apiculatum</i>	common everlasting	Ground	N	0.1	1
<i>Trifolium pratense</i>	-	Ground	E	0.1	50
<i>Calotis cuneifolia</i>	purple burr-daisy	Ground	N	0.1	3
<i>Eragrostis spp.</i>	a lovegrass	Ground	-	0.1	20
<i>Plantago debilis</i>	shade plantain	Ground	N	0.1	1
<i>Pelargonium australe</i>	native storksbill	Ground	N	0.1	1
<i>Rumex acetosella</i>	sheep sorrel	Ground	E	0.1	1
<i>Geranium solanderi</i>	native geranium	Ground	N	0.1	1
<i>Hypericum gramineum</i>	St john's wort	Ground	E	0.1	1
<i>Poa labillardierei</i> var. <i>labillardierei</i>	-	Ground	N	0.1	1
<i>Eucalyptus blakelyi</i>	Blakely's red gum	Ground	N	0.1	1


Plot 3 photo:



Plot 4 (Zone 5)

Latitude 151.6700416, Longitude -30.39029355

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Eucalyptus caliginosa</i>	broad leaved stringybark	Upper	N	5	1
<i>Cyperus gracilis</i>	slender flat-sedge	Ground	N	25	2000
<i>Dactylis glomerata</i>	-	Ground	E	5	1000
<i>Sporobolus spp.</i>	rat's tail couch	Ground	E	2.5	100
<i>Cirsium vulgare</i>	spear thistle	Ground	E	2	50
<i>Trifolium subterraneum</i>	-	Ground	E	1	500
<i>Plantago tomentosa</i>	-	Ground	N	0.5	10
<i>Plantago turrifera</i>	small sago-weed	Ground	N	0.3	200
<i>Juncus usitatus</i>	common rush	Ground	N	0.2	10
<i>Geranium solanderi</i>	native geranium	Ground	N	0.1	50
<i>Dichondra repens</i>	kidney weed	Ground	N	0.1	20
<i>Hypoxis hygrometrica</i>	-	Ground	N	0.1	1
<i>Trifolium repens</i>	white clover	Ground	E	0.1	20
<i>Plantago lanceolata</i>	-	Ground	E	0.1	1
<i>Rumex acetosella</i>	dock	Ground	E	0.1	10
<i>Haloragis heterophylla</i>	collected at offset plot 1	Ground	N	0.1	200
<i>Chrysocephalum apiculatum</i>	-	Ground	N	0.1	50
<i>Hypochaeris radicata</i>	-	Ground	E	0.1	10

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
Plot 4 photo:					
					

Plot 5 (Zone 1)

Latitude 151.6742278, Longitude -30.38919504

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Eucalyptus albens</i>	white box	Upper	N	20	25
<i>Cyperus gracilis</i>	slender flat-sedge	Ground	N	15	2000
<i>Juncus spp.</i>	a rush	Ground	N	10	100
<i>Sporobolus spp.</i>	rat's tail couch	Ground	E	5	500
<i>Eragrostis spp.</i>	a lovegrass	Ground	-	0.5	50
<i>Dichondra repens</i>	kidney weed	Ground	N	0.2	20
<i>Cirsium vulgare</i>	spear thistle	Ground	E	0.2	5
<i>Trifolium repens</i>	white clover	Ground	E	0.2	100
<i>Haloragis heterophylla</i>	-	Ground	N	0.2	100
<i>Medicago polymorpha</i>	-	Ground	E	0.2	20
<i>Plantago debilis</i>	sago-weed	Ground	N	0.1	20
<i>Trifolium pratense</i>	-	Ground	E	0.1	50
<i>Craspedia variabilis</i>	common billy-buttons	Ground	N	0.1	20
<i>Juncus subglaucus</i>	hollow stem	Ground	N	0.1	1

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Soliva sessilis</i>	bindi	Ground	E	0.1	1
<i>Rumex acetosella</i>	-	Ground	E	0.1	5
<i>Hypochaeris radicata</i>	-	Ground	E	0.1	5
<i>Erigeron sumatrensis</i>	-	Ground	E	0.1	1

Plot 5 photo:

Plot 6 (Zone 2)

Latitude 151.6637941, Longitude -30.38805582

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Eucalyptus blakelyi</i>	Blakely's Red Gum	Upper	N	5	1
<i>Eucalyptus albens</i> <--> <i>E blakelyi</i>	hybrid of <i>e albens</i> x <i>e blakelyi</i>	Upper	N	5	2
<i>Bromus spp.</i>	a brome	Ground	E	15	500
<i>Cyperus gracilis</i>	slender flat-sedge	Ground	N	2.5	2000
<i>Cirsium vulgare</i>	spear thistle	Ground	E	0.4	50
<i>Urtica incisa</i>	stinging nettle	Ground	N	0.2	20
<i>Trifolium repens</i>	white clover	Ground	E	0.2	20
<i>Trifolium subterraneum</i>		Ground	E	0.1	20
<i>Geranium solanderi</i>	native geranium	Ground	N	0.1	10
<i>Sporobolus spp.</i>	rat's tail couch	Ground	E	0.1	10

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Poranthera microphylla</i>		Ground	N	0.1	5
<i>Sonchus oleraceus</i>		Ground	E	0.1	4
<i>Viola betonicifolia</i>	native violet	Ground	N	0.1	2
<i>Einadia nutans</i>	a saltbush	Ground	N	0.1	1
<i>Capsella bursa-pastoris</i>	shepherd's purse	Ground	E	0.1	1

Plot 6 photo:

Plot 7 (Zone 3)

Latitude 151.6650529, Longitude -30.38180998

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Juncus paucifloris</i>		Ground	N	15	100
<i>Cyperus gracilis</i>	slender flat-sedge	Ground	N	5	2000
<i>Bothriochloa macra</i>		Ground	N	5	1000
<i>Juncus usitatus</i>		Ground	N	4	100
<i>Trifolium repens</i>	sago-weed	Ground	N	0.5	1000
<i>Sporobolus spp.</i>	rat's tail couch	Ground	E	0.3	50
<i>Setaria spp.</i>	sp.indet (no fertile parts)	Ground	N	0.3	3
<i>Eragrostis spp.</i>	a lovegrass	Ground	-	0.2	20
<i>Chrysocephalum</i>	-	Ground	N	0.2	200

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>apiculatum</i>					
<i>Juncus subglaucus</i>	-	Ground	N	0.2	10
<i>Aristida ramosa</i>	-	Ground	N	0.2	3
<i>Medicago polymorpha</i>	-	Ground	E	0.1	1
<i>Juncus filicaulis</i>	-	Ground	N	0.1	10
<i>Euchiton sphaericus</i>	star cudweed	Ground	N	0.1	20
<i>Hypochaeris radicata</i>	-	Ground	E	0.1	10
<i>Cirsium vulgare</i>	spear thistle	Ground	E	0.1	20
<i>Rumex acetosella</i>	sheep sorrel	Ground	E	0.1	20
<i>Haloragis heterophylla</i>	-	Ground	N	0.1	20
<i>Plantago cunninghamii</i>	sago-weed	Ground	N	0.1	20
<i>Bothriochloa macra</i>	-	Ground	N	0.1	1
<i>Dactylis glomerata</i>	sown pasture grass	Ground	E	0.1	1

Plot 7 photo:

Plot 8 (Zone 1)

Latitude 151.6667157, Longitude -30.39388874

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Eucalyptus bridgesiana</i>	apple box	Upper	N	15	1

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Juncus usitatus</i>	-	Ground	N	10	500
<i>Juncus homolocalis</i>	-	Ground	N	10	500
<i>Cyperus gracilis</i>	slender flat-sedge	Ground	N	4	2000
<i>Dactylis glomerata</i>	-	Ground	E	3	100
<i>Dichondra repens</i>	kidney weed	Ground	N	1.5	1000
<i>Plantago cunninghamii</i>	sago-weed	Ground	N	1	500
<i>Chrysocephalum apiculatum</i>	common everlasting	Ground	N	1	150
<i>Hydrocotyle tripartita</i>	pennywort	Ground	N	1	500
<i>Aristida calycina</i>	a wiregrass	Ground	N	1	10
<i>Hypochaeris radicata</i>	-	Ground	E	0.5	100
<i>Trifolium repens</i>	-	Ground	E	0.4	1000
<i>Sporobolus spp.</i>	rat's tail couch	Ground	E	0.4	100
<i>Haloragis heterophylla</i>	-	Ground	N	0.2	500
<i>Mitrasacme polymorpha</i>	-	Ground	N	0.1	1
<i>Medicago polymorpha</i>	-	Ground	E	0.1	100
<i>Soliva sessilis</i>	-	Ground	E	0.1	1
<i>Cirsium vulgare</i>	-	Ground	E	0.1	5

Plot 8 photo:



Plot 9 (Zone 3)

Latitude 151.6658786, Longitude -30.38861075

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Poa labillardierei</i> var. <i>labillardierei</i>	tussock	Ground	N	40	500
<i>Cyperus gracilis</i>	-	Ground	N	10	2000
<i>Bothriochloa macra</i>	-	Ground	N	5	50
<i>Trifolium repens</i>	-	Ground	E	5	2000
<i>Plantago</i> spp.	-	Ground	N	1	50
<i>Hypochaeris radicata</i>	-	Ground	E	0.2	50
<i>Setaria</i> spp.	-	Ground	*	0.1	1
<i>Cirsium vulgare</i>	spear thistle	Ground	E	0.1	20
<i>Chrysocephalum apiculatum</i>	common everlasting	Ground	N	0.1	20
<i>Dichondra repens</i>	kidney weed	Ground	N	0.1	50
<i>Dichelachne micrantha</i>	-	Ground	N	0.1	10

Plot 9 photo:



Plot 10 (Zone 2)

Latitude 151.6621744 , Longitude -30.38852265

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Eucalyptus caliginosa</i>	broad-leaved stringybark	Upper	N	5	-
<i>Dactylis glomerata</i>	cultivated	Ground	E	45	-
<i>Cyperus gracilis</i>	slender flat-sedge	Ground	N	5	-
<i>Cynodon dactylon</i>		Ground	N	2	500
<i>Juncus spp.</i>	a rush	Ground	N	1	100
<i>Holcus lanatus</i>	yorkshire fog	Ground	E	1	10
<i>Lolium sp.</i>	ryegrass	Ground	E	1	100
<i>Setaria pumila</i>		Ground	E	1	100
<i>Rumex acetosella</i>	sheep sorrel	Ground	E	1	100
<i>Cirsium vulgare</i>		Ground	E	1	100
<i>Oxalis sp.</i>		Ground	E	1	100
<i>Poa annua</i>		Ground	E	1	100
<i>Cerastium glomertum</i>	chickweed	Ground	E	0.2	50
<i>Cotula sp.</i>		Ground	N	0.2	50
<i>Plantago sp.</i>		Ground	E	0.1	50

Plot 10 photo:



Plot 11 (Zone 1)

Latitude 151.6706373, Longitude -30.38285896

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Eucalyptus blakelyi</i>	Blakely's red gum	Upper	N	25	-
<i>Eucalyptus melliodora</i>	yellow box	Upper	N	4	1
<i>Dactylis glomerata</i>	sown pasture	Ground	E	90	-
<i>Poa annua</i>		Ground	E	10	-
<i>Juncus usitatus</i>		Ground	N	5	-
<i>Festuca rubra</i>	red fescue	Ground	E	1	500
<i>Halotus lanatus</i>	Yorkshire fog	Ground	E	0.5	20
<i>Cotula australis</i>	common cotula	Ground	N	0.2	50
<i>Cerastium glomeratum</i>		Ground	E	0.2	50
<i>Plantago lanceolata</i>	plantain	Ground	N	0.2	20
<i>Oxalis sp</i>		Ground	E	0.2	100
<i>Paronchylia brasiliiana</i>		Ground	E	0.1	20
<i>Rumex acetophila</i>	sheep sorrel	Ground	E	0.1	20
<i>Cymbonotus preissianus</i>	austral bear's ear	Ground	N	0.1	10
<i>Sporobolus spp.</i>	Rat's Tail Couch	Ground	E	0.1	10


Plot 11 photo:



Plot 12 (Zone 5)

Latitude 151.6669481 , Longitude -30.38894841

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Eucalyptus caliginosa</i>	broad-leaved stringybark	Upper	N	10	1
<i>Anthoxanthum odoratum</i>	-	Ground	E	20	-
<i>Echinopogon ovatus</i>	forest hedgehog grass	Ground	N	10	50
<i>Rytidosperma racemosum</i>	-	Ground	N	10	-
<i>Sporobolus spp.</i>	rat's tail couch	Ground	E	10	-
<i>Poa labillardierei var. labillardierei</i>	tussock	Ground	N	10	-
<i>Eragrostis spp.</i>	a lovegrass	Ground	-	10	-
<i>Panicum spp.</i>	panicum	Ground	N	10	-
<i>Vulpia myuros</i>	-	Ground	E	5	-
<i>Gamochaeta sp</i>	-	Ground	E	0.5	500
<i>Koeleria spinosa</i>	-	Ground	E	0.2	1
<i>Oxalis perennans</i>	-	Ground	N	0.2	50
<i>Verbascum thapsus</i>	-	Ground	E	0.1	10
<i>Rubus parvifolius</i>	native raspberry	Ground	N	0.1	1
<i>Tetradlea thymifolia</i>	black-eyed susan	Ground	N	0.1	10
<i>Geranium solanderi</i>	native geranium	Ground	N	0.1	10
<i>Desmodium varians</i>	slender tick-trefoil	Ground	N	0.1	10
<i>Veronica calycina</i>	hairy speedwell	Ground	N	0.1	10
<i>Lissanthe strigosa</i>	peach heath	Ground	N	0.1	10
<i>Calotis cuneata</i>	mountain burr-daisy	Ground	N	0.1	10
<i>Cirsium vulgare</i>	-	Ground	E	0.1	10
<i>Hydrocotyle laxiflora</i>	stinking pennywort	Ground	N	0.1	10
<i>Hypochaeris radicata</i>	-	Ground	E	0.1	10
<i>Oxalis repens</i>	-	Ground	E	0.1	20
<i>Stellaria sp</i>	-	Ground	-	0.1	10
<i>Juncus planifolius</i>	-	Ground	N	0.1	20

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
Plot 12 photo:					
					

Plot 13 (Zone 5)

Latitude 151.664772, Longitude -30.38514454

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Eucalyptus bridgesiana</i>	apple box	Upper	N	55	-
<i>Poa labillardierei</i> var. <i>labillardierei</i>	tussock	Ground	N	40	-
<i>Lolium perenne</i>	perennial ryegrass	Ground	E	20	-
<i>Dactylis glomerata</i>	-	Ground	E	10	-
<i>Poa annua</i> or <i>pratensis</i>	-	Ground	E	10	-
<i>Cyperus gracilis</i>	slender flat-sedge	Ground	N	1	500
<i>Cirsium vulgare</i>	spear thistle	Ground	E	0.2	20
<i>Oxalis repens</i>	creeping woodsorrel	Ground	E	0.2	50
<i>Plantain lanceolata</i>	ribwort plantain	Ground	E	0.2	50
<i>Geranium solanderi</i>	native geranium	Ground	N	0.1	20
<i>Cyclosporum leptodpermum</i>	-	Ground	E	0.1	20
<i>Rumex acetophila</i>	red sorrel	Ground	E	0.1	20
<i>Cerastium gomeratum</i>	-	Ground	E	0.1	20

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Urtica incisa</i>	-	Ground	N	0.1	10
<i>Hypochaeris radicata</i>	false dandelion	Ground	E	0.1	20
<i>Juncus usitatus</i>	common rush	Ground	N	0.1	5

Plot 13 photo:

Plot 14 (Zone 3)

Latitude 151.667843, Longitude -30.39231397

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Juncus usitatus</i>	common rush	Ground	N	55	
<i>Sporobolus spp.</i>	rat's tail couch	Ground	E	5	
<i>Plantain lanceolata</i>	ribwort plantain	Ground	E	5	
<i>Chaemochrista sp</i>	-	Ground	E	2	500
<i>Poa labillardierei</i> var. <i>labillardierei</i>	tussock	Ground	N	10	
<i>Cyperus gracilis</i>	slender flat-sedge	Ground	N	10	
<i>Holcus lanatus</i>	-	Ground	E	1	20
<i>Oxalis repens</i>	-	Ground	E	1	50
<i>Hypochaeris radicata</i>	-	Ground	E	1	100
<i>Cyclosporum leptospermum</i>	-	Ground	E	0.5	100

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Cirsium vulgare</i>	spear thistle	Ground	E	0.2	20
<i>Haloragis heterophylla</i>	variable raspwort	Ground	N	0.1	20

Plot 14 photo:




Plot 15 (Zone 4)

Latitude 151.6570301, Longitude -30.39203824

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Eucalyptus blakelyi</i>	Blakely's red gum	Upper	N	15	3
<i>Eucalyptus bridgesiana</i>	apple box	Upper	N	6	1
<i>Amyema miquelii</i>	box mistletoe	Upper	N	1.2	6
<i>Bursaria spinosa</i>	native blackthorn	Mid	N	5	10
<i>Leionema dentatum</i>	toothed phebalium	Mid	N	2	10
<i>Cassinia quinquefaria</i>	-	Mid	N	0.4	1
<i>Jacksonia scoparia</i>	dogwood	Mid	N	0.1	5
<i>Juncus usitatus</i>	-	Ground	N	40	1000
<i>Poaceae sp. Indet (no fertile material)</i>	-	Ground	N	20	1000
<i>Bursaria spinosa</i>	native blackthorn	Ground	N	5	10
<i>Cyperus gracilis</i>	slender flat-sedge	Ground	N	5	1000
<i>Medicago polymorpha</i>	-	Ground	E	1	20

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Sporobolus creber</i>	slender rat's tail grass	Ground	N	1	20
<i>Cymbopogon refractus</i>	barbed wire grass	Ground	N	0.5	20
<i>Lissanthe strigosa</i>	peach heath	Ground	N	0.4	10
<i>Lomandra filiformis</i>	wattle matt-rush	Ground	N	0.3	10
<i>Craspedia variabilis</i>	common billy-buttons	Ground	N	0.3	20
<i>Cheilanthes sieberi</i>	rock fern	Ground	N	0.3	20
<i>Hypochaeris radicata</i>	-	Ground	E	0.2	20
<i>Jacksonia scoparia</i>	dogwood	Ground	N	0.2	5
<i>Eucalyptus bridgesiana</i>	apple box	Ground	N	0.1	2
<i>Leucopogon trichostylus</i>	-	Ground	N	0.1	10
<i>Lissanthe strigosa</i>	-	Ground	N	0.1	10
<i>Trifolium pratense</i>	red clover	Ground	E	0.1	5
<i>Aristida ramosa</i>	-	Ground	N	0.1	1
<i>Eriachne spp.</i>	-	Ground	N	0.1	1
<i>Oxalis perennans</i>	-	Ground	N	0.1	20
<i>Hypericum gramineum</i>	small st john's wort	Ground	N	0.1	5
<i>Calotis cuneifolia</i>	purple burr-daisy	Ground	N	0.1	10
<i>Haloragis heterophylla</i>	-	Ground	N	0.1	10
<i>Hypoxis hygrometrica</i>	-	Ground	N	0.1	10
<i>Euchiton sphaericus</i>	-	Ground	N	0.1	10
<i>Hibbertia obtusifolia</i>	-	Ground	N	0.1	10
<i>Pullenia gunnii</i>	-	Ground	N	0.1	10
<i>Thysanotus tuberosus</i>	-	Ground	N	0.1	1
<i>Trifolium repens</i>	-	Ground	E	0.1	1
<i>Aristida benthamii</i>	-	Ground	N	0.1	1


Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
Plot 15 photo:					
					

Plot 16 (Zone 4)

Latitude 151.6602135, Longitude -30.39365086

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Eucalyptus blakelyi</i>	Blakely's red gum	Upper	N	25	3
<i>Eucalyptus caliginosa</i>	broad-leaved stringybark	Upper	N	3	10
<i>Eucalyptus viminalis</i>	ribbon gum	Upper	N	1	1
<i>Amyema miquelii</i>	box mistletoe	Upper	N	0.1	1
<i>Bursaria spinosa</i>	native blackthorn	Mid	N	7	20
<i>Leionoma dentatum</i>	-	Mid	N	3	5
<i>Dillwynia sieberi</i>	-	Mid	N	0.3	20
<i>Olearia viscidula</i>	-	Mid	N	0.1	10
<i>Lissanthe strigosa</i>	peach heath	Ground	N	10	50
<i>Pultenaea spp.</i>	-	Ground	N	5	100
<i>Chrysocephalum apiculatum</i>	common everlasting	Ground	N	4	1000
<i>Cymbopogon refractus</i>	barbed wire grass	Ground	N	2	10
<i>Aristida ramosa</i>	a wiregrass	Ground	N	1	1

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<i>Calotis cuneifolia</i>	purple burr-daisy	Ground	N	1	20
<i>Eucalyptus blakelyi</i>	Blakely's red gum	Ground	N	0.3	4
<i>Eucalyptus bridgesiana</i>	apple box	Ground	N	0.3	5
<i>Cyperus gracilis</i>	slender flat-sedge	Ground	N	0.3	50
<i>Desmodium varians</i>	slender tick-trefoil	Ground	N	0.2	200
<i>Juncus usitatus</i>	-	Ground	N	0.2	100
<i>Sporobolus creber</i>	rat's tail couch	Ground	E	0.2	20
<i>Bothriochloa macra</i>	-	Ground	N	0.2	50
<i>Cheilanthes distans</i>	bristly cloak fern	Ground	N	0.2	100
<i>Cassytha pubescens</i>	downy dodder-laurel	Ground	N	0.1	1
<i>Imperata cylindrica</i>	-	Ground	N	0.1	10
<i>Scleria mackaviensis</i>	-	Ground	N	0.1	6
<i>Hypochaeris radicata</i>	-	Ground	E	0.1	100
<i>Echinopogon nutans</i>	-	Ground	N	0.1	10
<i>Dysphania pumilio</i>	-	Ground	N	0.1	20
<i>Goodenia bellidifolia</i>	-	Ground	N	0.1	20
<i>Euchiton sphaericus</i>	star cudweed	Ground	N	0.1	50
<i>Haloragis heterophylla</i>	-	Ground	N	0.1	100
<i>Oxalis perennans</i>	-	Ground	N	0.1	10
<i>Cirsium vulgare</i>	-	Ground	E	0.1	1

Scientific name	Common name	Growth stratum	Status	Cover (%)	Abundance
<p>Plot 16 photo:</p>					

Appendix 6 Predicted threatened species report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00049575/BAAS24012/24/00049576	Tilbuster 2 Solar Farm Extension	28/10/2024
Assessor Name	Report Created	BAM Data version *
Jennifer Timbs	24/11/2024	Current classification (live - default) (80)
Assessor Number	Assessment Type	BAM Case Status
BAAS24012	Major Projects	Finalised
Assessment Revision		Date Finalised
0		24/11/2024

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name	Vegetation Types(s)
Black Falcon	Falco subniger	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Black-necked Stork	Ephippiorhynchus asiaticus	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Diamond Firetail	Stagonopleura guttata	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Dusky Woodswallow	Artamus cyanopterus cyanopterus	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Eastern False Pipistrelle	Falsistrellus tasmaniensis	3359-New England Hills Stringybark-Box Woodland
Flame Robin	Petroica phoenicea	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest

BAM Predicted Species Report

Greater Broad-nosed Bat	Scoteanax rueppellii	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Grey-headed Flying-fox	Pteropus poliocephalus	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Hastings River Mouse	Pseudomys oralis	3359-New England Hills Stringybark-Box Woodland
Large Bent-winged Bat	Miniopterus orianae oceanensis	3359-New England Hills Stringybark-Box Woodland
Little Eagle	Hieraaetus morphnoides	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Little Lorikeet	Glossopsitta pusilla	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Regent Honeyeater	Anthochaera phrygia	3359-New England Hills Stringybark-Box Woodland
South-eastern Glossy Black-Cockatoo	Calyptorhynchus lathami lathami	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Speckled Warbler	Chthonicola sagittata	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Spotted Harrier	Circus assimilis	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Spotted-tailed Quoll	Dasyurus maculatus	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Square-tailed Kite	Lophoictinia isura	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Swift Parrot	Lathamus discolor	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Varied Sittella	Daphoenositta chrysoptera	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
White-bellied Sea-Eagle	Haliaeetus leucogaster	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
White-throated Needletail	Hirundapus caudacutus	3359-New England Hills Stringybark-Box Woodland 3352-Armidale Quartz Hills Stringybark Forest
Yellow-bellied Glider	Petaurus australis	3359-New England Hills Stringybark-Box Woodland
Yellow-bellied Sheath-tail-bat	Saccolaimus flaviventris	3359-New England Hills Stringybark-Box Woodland

Threatened species Manually Added



BAM Predicted Species Report

Common Name	Scientific Name
Greater Broad-nosed Bat	Scoteanax rueppellii

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
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Appendix 7 Candidate threatened species report

Proposal Details

Assessment Id 00049575/BAAS24012/24/00049576	Proposal Name Tilbuster 2 Solar Farm Extension	BAM data last updated * 28/10/2024
Assessor Name Jennifer Timbs	Report Created 24/11/2024	BAM Data version * Current classification (live - default) (80)
Assessor Number BAAS24012	Assessment Type Major Projects	BAM Case Status Finalised
Assessment Revision 0		Date Finalised 24/11/2024

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

List of Species Requiring Survey

Name	Presence	Survey Months
<i>Adelotus brevis - endangered population</i> Tusked Frog population in the Nandewar and New England Tableland Bioregions	No (surveyed)	<input checked="" type="checkbox"/> Jan <input type="checkbox"/> Feb <input type="checkbox"/> Mar <input type="checkbox"/> Apr <input type="checkbox"/> May <input type="checkbox"/> Jun <input type="checkbox"/> Jul <input type="checkbox"/> Aug <input type="checkbox"/> Sep <input type="checkbox"/> Oct <input type="checkbox"/> Nov <input checked="" type="checkbox"/> Dec <input type="checkbox"/> Survey month outside the specified months?
<i>Burhinus grallarius</i> Bush Stone-curlew	No (surveyed)	<input type="checkbox"/> Jan <input type="checkbox"/> Feb <input type="checkbox"/> Mar <input type="checkbox"/> Apr <input type="checkbox"/> May <input type="checkbox"/> Jun <input type="checkbox"/> Jul <input checked="" type="checkbox"/> Aug <input type="checkbox"/> Sep <input type="checkbox"/> Oct <input type="checkbox"/> Nov <input type="checkbox"/> Dec <input type="checkbox"/> Survey month outside the specified months?
<i>Calyptorhynchus lathami lathami</i> South-eastern Glossy Black-Cockatoo	No (surveyed)	<input type="checkbox"/> Jan <input type="checkbox"/> Feb <input type="checkbox"/> Mar <input type="checkbox"/> Apr <input type="checkbox"/> May <input type="checkbox"/> Jun <input type="checkbox"/> Jul <input checked="" type="checkbox"/> Aug <input type="checkbox"/> Sep <input type="checkbox"/> Oct <input type="checkbox"/> Nov <input type="checkbox"/> Dec <input type="checkbox"/> Survey month outside the specified months?

BAM Candidate Species Report

<p><i>Dichanthium setosum</i> Bluegrass</p>	<p>No (surveyed)</p>	<table border="1"> <tr> <td><input checked="" type="checkbox"/> Jan</td> <td><input type="checkbox"/> Feb</td> <td><input type="checkbox"/> Mar</td> <td><input type="checkbox"/> Apr</td> </tr> <tr> <td><input type="checkbox"/> May</td> <td><input type="checkbox"/> Jun</td> <td><input type="checkbox"/> Jul</td> <td><input type="checkbox"/> Aug</td> </tr> <tr> <td><input type="checkbox"/> Sep</td> <td><input type="checkbox"/> Oct</td> <td><input type="checkbox"/> Nov</td> <td><input type="checkbox"/> Dec</td> </tr> </table> <p><input type="checkbox"/> Survey month outside the specified months?</p>	<input checked="" type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input type="checkbox"/> Dec
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<p><i>Eucalyptus magnificata</i> Northern Blue Box</p>	<p>No (surveyed)</p>	<table border="1"> <tr> <td><input checked="" type="checkbox"/> Jan</td> <td><input type="checkbox"/> Feb</td> <td><input type="checkbox"/> Mar</td> <td><input type="checkbox"/> Apr</td> </tr> <tr> <td><input type="checkbox"/> May</td> <td><input type="checkbox"/> Jun</td> <td><input type="checkbox"/> Jul</td> <td><input checked="" type="checkbox"/> Aug</td> </tr> <tr> <td><input type="checkbox"/> Sep</td> <td><input type="checkbox"/> Oct</td> <td><input type="checkbox"/> Nov</td> <td><input checked="" type="checkbox"/> Dec</td> </tr> </table> <p><input type="checkbox"/> Survey month outside the specified months?</p>	<input checked="" type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec
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<p><i>Eucalyptus nicholii</i> Narrow-leaved Black Peppermint</p>	<p>No (surveyed)</p>	<table border="1"> <tr> <td><input checked="" type="checkbox"/> Jan</td> <td><input type="checkbox"/> Feb</td> <td><input type="checkbox"/> Mar</td> <td><input type="checkbox"/> Apr</td> </tr> <tr> <td><input type="checkbox"/> May</td> <td><input type="checkbox"/> Jun</td> <td><input type="checkbox"/> Jul</td> <td><input checked="" type="checkbox"/> Aug</td> </tr> <tr> <td><input type="checkbox"/> Sep</td> <td><input type="checkbox"/> Oct</td> <td><input type="checkbox"/> Nov</td> <td><input checked="" type="checkbox"/> Dec</td> </tr> </table> <p><input type="checkbox"/> Survey month outside the specified months?</p>	<input checked="" type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec
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<p><i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle</p>	<p>No (surveyed)</p>	<table border="1"> <tr> <td><input type="checkbox"/> Jan</td> <td><input type="checkbox"/> Feb</td> <td><input type="checkbox"/> Mar</td> <td><input type="checkbox"/> Apr</td> </tr> <tr> <td><input type="checkbox"/> May</td> <td><input type="checkbox"/> Jun</td> <td><input type="checkbox"/> Jul</td> <td><input checked="" type="checkbox"/> Aug</td> </tr> <tr> <td><input type="checkbox"/> Sep</td> <td><input type="checkbox"/> Oct</td> <td><input type="checkbox"/> Nov</td> <td><input checked="" type="checkbox"/> Dec</td> </tr> </table> <p><input type="checkbox"/> Survey month outside the specified months?</p>	<input type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec
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<p><i>Hieraetus morphnoides</i> Little Eagle</p>	<p>No (surveyed)</p>	<table border="1"> <tr> <td><input type="checkbox"/> Jan</td> <td><input type="checkbox"/> Feb</td> <td><input type="checkbox"/> Mar</td> <td><input type="checkbox"/> Apr</td> </tr> <tr> <td><input type="checkbox"/> May</td> <td><input type="checkbox"/> Jun</td> <td><input type="checkbox"/> Jul</td> <td><input checked="" type="checkbox"/> Aug</td> </tr> <tr> <td><input type="checkbox"/> Sep</td> <td><input type="checkbox"/> Oct</td> <td><input type="checkbox"/> Nov</td> <td><input type="checkbox"/> Dec</td> </tr> </table> <p><input type="checkbox"/> Survey month outside the specified months?</p>	<input type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input type="checkbox"/> Dec
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<p><i>Litoria piperata</i> Peppered Tree Frog</p>	<p>No (surveyed)</p>	<table border="1"> <tr> <td><input checked="" type="checkbox"/> Jan</td> <td><input type="checkbox"/> Feb</td> <td><input type="checkbox"/> Mar</td> <td><input type="checkbox"/> Apr</td> </tr> <tr> <td><input type="checkbox"/> May</td> <td><input type="checkbox"/> Jun</td> <td><input type="checkbox"/> Jul</td> <td><input type="checkbox"/> Aug</td> </tr> <tr> <td><input type="checkbox"/> Sep</td> <td><input type="checkbox"/> Oct</td> <td><input type="checkbox"/> Nov</td> <td><input checked="" type="checkbox"/> Dec</td> </tr> </table> <p><input type="checkbox"/> Survey month outside the specified months?</p>	<input checked="" type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec
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BAM Candidate Species Report

<p><i>Lophoictinia isura</i> Square-tailed Kite</p>	<p>No (surveyed)</p>	<table border="1"> <tr> <td><input type="checkbox"/> Jan</td> <td><input type="checkbox"/> Feb</td> <td><input type="checkbox"/> Mar</td> <td><input type="checkbox"/> Apr</td> </tr> <tr> <td><input type="checkbox"/> May</td> <td><input type="checkbox"/> Jun</td> <td><input type="checkbox"/> Jul</td> <td><input type="checkbox"/> Aug</td> </tr> <tr> <td><input type="checkbox"/> Sep</td> <td><input type="checkbox"/> Oct</td> <td><input type="checkbox"/> Nov</td> <td><input checked="" type="checkbox"/> Dec</td> </tr> </table> <p><input type="checkbox"/> Survey month outside the specified months?</p>	<input type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec
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<p><i>Myotis macropus</i> Southern Myotis</p>	<p>Yes (assumed present)</p>	<table border="1"> <tr> <td><input type="checkbox"/> Jan</td> <td><input type="checkbox"/> Feb</td> <td><input type="checkbox"/> Mar</td> <td><input type="checkbox"/> Apr</td> </tr> <tr> <td><input type="checkbox"/> May</td> <td><input type="checkbox"/> Jun</td> <td><input type="checkbox"/> Jul</td> <td><input type="checkbox"/> Aug</td> </tr> <tr> <td><input type="checkbox"/> Sep</td> <td><input type="checkbox"/> Oct</td> <td><input type="checkbox"/> Nov</td> <td><input type="checkbox"/> Dec</td> </tr> </table> <p><input type="checkbox"/> Survey month outside the specified months?</p>	<input type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input type="checkbox"/> Dec
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<p><i>Ninox connivens</i> Barking Owl</p>	<p>No (surveyed)</p>	<table border="1"> <tr> <td><input type="checkbox"/> Jan</td> <td><input type="checkbox"/> Feb</td> <td><input type="checkbox"/> Mar</td> <td><input type="checkbox"/> Apr</td> </tr> <tr> <td><input type="checkbox"/> May</td> <td><input type="checkbox"/> Jun</td> <td><input type="checkbox"/> Jul</td> <td><input checked="" type="checkbox"/> Aug</td> </tr> <tr> <td><input type="checkbox"/> Sep</td> <td><input type="checkbox"/> Oct</td> <td><input type="checkbox"/> Nov</td> <td><input type="checkbox"/> Dec</td> </tr> </table> <p><input type="checkbox"/> Survey month outside the specified months?</p>	<input type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input type="checkbox"/> Dec
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<p><i>Ninox strenua</i> Powerful Owl</p>	<p>No (surveyed)</p>	<table border="1"> <tr> <td><input type="checkbox"/> Jan</td> <td><input type="checkbox"/> Feb</td> <td><input type="checkbox"/> Mar</td> <td><input type="checkbox"/> Apr</td> </tr> <tr> <td><input type="checkbox"/> May</td> <td><input type="checkbox"/> Jun</td> <td><input type="checkbox"/> Jul</td> <td><input checked="" type="checkbox"/> Aug</td> </tr> <tr> <td><input type="checkbox"/> Sep</td> <td><input type="checkbox"/> Oct</td> <td><input type="checkbox"/> Nov</td> <td><input type="checkbox"/> Dec</td> </tr> </table> <p><input type="checkbox"/> Survey month outside the specified months?</p>	<input type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input type="checkbox"/> Dec
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<p><i>Petauroides volans</i> Southern Greater Glider</p>	<p>No (surveyed)</p>	<table border="1"> <tr> <td><input type="checkbox"/> Jan</td> <td><input type="checkbox"/> Feb</td> <td><input type="checkbox"/> Mar</td> <td><input checked="" type="checkbox"/> Apr</td> </tr> <tr> <td><input type="checkbox"/> May</td> <td><input type="checkbox"/> Jun</td> <td><input type="checkbox"/> Jul</td> <td><input type="checkbox"/> Aug</td> </tr> <tr> <td><input type="checkbox"/> Sep</td> <td><input type="checkbox"/> Oct</td> <td><input type="checkbox"/> Nov</td> <td><input checked="" type="checkbox"/> Dec</td> </tr> </table> <p><input type="checkbox"/> Survey month outside the specified months?</p>	<input type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input type="checkbox"/> Mar	<input checked="" type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec
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<p><i>Petaurus norfolcensis</i> Squirrel Glider</p>	<p>No (surveyed)</p>	<table border="1"> <tr> <td><input type="checkbox"/> Jan</td> <td><input type="checkbox"/> Feb</td> <td><input type="checkbox"/> Mar</td> <td><input type="checkbox"/> Apr</td> </tr> <tr> <td><input type="checkbox"/> May</td> <td><input type="checkbox"/> Jun</td> <td><input type="checkbox"/> Jul</td> <td><input checked="" type="checkbox"/> Aug</td> </tr> <tr> <td><input type="checkbox"/> Sep</td> <td><input type="checkbox"/> Oct</td> <td><input type="checkbox"/> Nov</td> <td><input checked="" type="checkbox"/> Dec</td> </tr> </table> <p><input type="checkbox"/> Survey month outside the specified months?</p>	<input type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec
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BAM Candidate Species Report

<p><i>Phascolarctos cinereus</i> Koala</p>	<p>No (surveyed)</p>	<table border="1"> <tr> <td><input type="checkbox"/> Jan</td> <td><input type="checkbox"/> Feb</td> <td><input type="checkbox"/> Mar</td> <td><input type="checkbox"/> Apr</td> </tr> <tr> <td><input type="checkbox"/> May</td> <td><input type="checkbox"/> Jun</td> <td><input type="checkbox"/> Jul</td> <td><input checked="" type="checkbox"/> Aug</td> </tr> <tr> <td><input type="checkbox"/> Sep</td> <td><input type="checkbox"/> Oct</td> <td><input type="checkbox"/> Nov</td> <td><input checked="" type="checkbox"/> Dec</td> </tr> </table> <p><input type="checkbox"/> Survey month outside the specified months?</p>	<input type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input checked="" type="checkbox"/> Dec
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<p><i>Tyto novaehollandiae</i> Masked Owl</p>	<p>No (surveyed)</p>	<table border="1"> <tr> <td><input type="checkbox"/> Jan</td> <td><input type="checkbox"/> Feb</td> <td><input type="checkbox"/> Mar</td> <td><input type="checkbox"/> Apr</td> </tr> <tr> <td><input type="checkbox"/> May</td> <td><input type="checkbox"/> Jun</td> <td><input type="checkbox"/> Jul</td> <td><input checked="" type="checkbox"/> Aug</td> </tr> <tr> <td><input type="checkbox"/> Sep</td> <td><input type="checkbox"/> Oct</td> <td><input type="checkbox"/> Nov</td> <td><input type="checkbox"/> Dec</td> </tr> </table> <p><input type="checkbox"/> Survey month outside the specified months?</p>	<input type="checkbox"/> Jan	<input type="checkbox"/> Feb	<input type="checkbox"/> Mar	<input type="checkbox"/> Apr	<input type="checkbox"/> May	<input type="checkbox"/> Jun	<input type="checkbox"/> Jul	<input checked="" type="checkbox"/> Aug	<input type="checkbox"/> Sep	<input type="checkbox"/> Oct	<input type="checkbox"/> Nov	<input type="checkbox"/> Dec
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Threatened species Manually Added

None added

Threatened species assessed as not on site

Refer to BAR for detailed justification

Common name	Scientific name	Justification in the BAM-C
Austral Toadflax	<i>Thesium australe</i>	Refer to BAR
Beadle's Grevillea	<i>Grevillea beadleana</i>	Refer to BAR
Brush-tailed Rock-wallaby	<i>Petrogale penicillata</i>	Habitat constraints
Caladenia amnicola	<i>Caladenia amnicola</i>	Habitat degraded
Callistemon pungens	<i>Callistemon pungens</i>	Refer to BAR
Eastern Pygmy-possum	<i>Cercartetus nanus</i>	Habitat degraded
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	Habitat constraints
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>	Habitat constraints
Large-eared Pied Bat	<i>Chalinolobus dwyeri</i>	Habitat constraints
Regent Honeyeater	<i>Anthochaera phrygia</i>	Habitat constraints
Silky Swainson-pea	<i>Swainsona sericea</i>	Refer to BAR
Swift Parrot	<i>Lathamus discolor</i>	Habitat constraints
Tall Velvet Sea-berry	<i>Haloragis exalata</i> subsp. <i>velutina</i>	Refer to BAR

Appendix 8 Hollow bearing tree register

Size class key: large (over 20 cm), medium (10-20 cm), small (less than 20 cm)

Tree ID	DBH (cm)	Size class	Hollow height (m)	X	Y	Notes
1	77	Large	2	151.6725407	-30.38861073	Large opening into trunk cavity, at seam of a previously multistemmed tree. Access hole approx. 30x20 cm. Suitable for multi species.
2	92	Large	8	151.6705271	-30.39065872	1 10 cm hollow, 2 cracks over 30 cm.
3	55	Large	4	151.6705189	-30.39074771	Large crack 80 cm long
4	65	Large	0	151.6685843	-30.38879832	Vertical split up hollow dedicated trunk, from ground level to 6 m
5	61	Large	12	151.6781893	-30.38745389	
6	140	Large	3	151.6782904	-30.38749274	
7	81	Large	5	151.6728564	-30.39448482	South facing hollow on trunk
8	70	Large	5	151.6733982	-30.39507167	Large hollow from limb tear out on southern aspect on trunk. Stag. Species unknown.
9	75	Large	5	151.6689797	-30.39514133	Stag
10	80	Large	10	151.66672	-30.39175499	Standing stag. Multiple hollows
11	200	Large	4	151.6660999	-30.39279245	Multiple hollows. One dead trunk
12	60	Large	15	151.6715837	-30.384479	Stag
13	-	Large	-	151.6773151	-30.38633319	HBT large
14	-	Large	-	151.678595	-30.387426	HBT Large and medium
15	-	Large	-	151.6702605	-30.38406619	HBT large and medium total 4
16	195	Large	8	151.664772	-30.38514454	HBT in Plot 13
17	40	Medium	3	151.6781897	-30.38747546	Long seam
18	118	Medium	10	151.675208	-30.38526934	East facing hollow on stem in canopy
19	82	Medium	10	151.6750118	-30.38580855	Open cavity hollow in branch in canopy,
20	82	Medium	6	151.6736853	-30.39488656	Hollow branch on eastern Side of branch. Potential to be a deep cavity. 10 cm entrance.
21	70	Medium	6	151.6725298	-30.39424545	Hollow on north side of trunk. Branch cavity with 10-15 cm access point. Other hollows forming.

Tree ID	DBH (cm)	Size class	Hollow height (m)	X	Y	Notes
22	65	Medium	6	151.6724671	-30.39416638	Branch cavity on northern side of tree. Stag. Species unknown. Other hollows forming over tree. Tree also has large basal cavity.
23	64	Medium	4	151.6724661	-30.39495478	Stag. Species unknown. Several cavities and small hollows, and others forming, including split in trunk at 3 m, two small access points to branch cavity at 4 m, split in branch at 5 m. Good habitat for microbats and small birds etc.
24	80	Medium	6	151.6728605	-30.39551668	Stag. Species unknown. Four hollows between 10-20 cm on stem and branches, with more forming. Cracks and crevices around split and fallen limbs also offering habitat.
25	78	Medium	4	151.6728716	-30.39556569	Hollow branch with 20 cm access point.
26	65	Medium	8	151.6732742	-30.39554863	Hollow in canopy stem. Occupied by Australian owl-nightjar.
27	75	Medium	8	151.6702116	-30.39551075	
28	2.5	Medium	4	151.666985	-30.39373328	
29	1.5	Medium	8	151.6649979	-30.38762357	
30	95	Medium	7	151.6647632	-30.38886546	Multiple hollows. Large fallen hollow log adjacent.
31	95	Medium	5	151.6643987	-30.38760944	Stag
32	60	Medium	8	151.6641718	-30.3872443	Stag
33	60	Medium	5	151.6640346	-30.38714188	Stag
34	1.2	Medium	8	151.6631492	-30.38721957	
35	-	Medium		151.6675879	-30.39472262	HBT medium
36	-	Medium		151.6675721	-30.39434041	HBT
37	-	Medium		151.66624	-30.39178688	HBT - medium
38	-	Medium		151.6693702	-30.39394203	HBT medium
39	-	Medium		151.6690354	-30.39490813	HBT
40	-	Medium		151.673586	-30.39490136	HBT stag
41	-	Medium		151.6696824	-30.39079009	HBT - medium
42	-	Medium		151.6693201	-30.39033498	HBT - dead. Multiple hollows on stag.
43	-	Medium		151.6734641	-30.38838074	HBT - medium

Tree ID	DBH (cm)	Size class	Hollow height (m)	X	Y	Notes
44	-	Medium		151.6726714	-30.38872111	HBT - 2 medium
45	-	Medium		151.6670482	-30.39454444	HBT - medium
46	-	Medium		151.6670328	-30.39370038	HBT - medium
47	-	Medium		151.6658042	-30.39374896	HBT medium
48	-	Medium		151.6754703	-30.38609975	HBT medium
49	-	Medium		151.6753164	-30.38521913	HBT multiple medium hollows
50	-	Medium		151.6749028	-30.38520574	HBT multiple small to medium
51	-	Medium		151.6757695	-30.3851488	HBT medium
52	-	Medium		151.6781794	-30.38731134	HBT 2 x medium
53	-	Medium		151.6785153	-30.38739597	HBT medium x 2
54	-	Medium		151.6712331	-30.38387942	HBT medium
55	-	Medium		151.6727449	-30.38371347	Hbt
56	66	Small	7	151.6693314	-30.39034302	1 small holes
57	55	Small	5	151.6701179	-30.391423	1 small hole
58	65	Small	8	151.668638	-30.38867481	Branch cavity, with small access hole approx 8-10 cm. Stag, species unknown.
59	90	Small	8	151.6790104	-30.38667566	Stag. Small south facing hollow at fork of branches in canopy.
60	29	Small	6	151.6782398	-30.38742379	Small hollow, 5-10 cm
61	60	Small	3	151.6761038	-30.38504779	Small south facing hollow in. Low branch
62	54	Small	5	151.6757345	-30.38497763	Stag. Unknown species. East facing Hollow on trunk at base of branch.
63	42	Small	6	151.6736349	-30.3876486	Unknown species. Stag. Lifted bark at top of stem creates cavity suitable for microbat roosting.
64	42	Small	1	151.6735833	-30.38761601	Same stag as previous record. Second hollow present at 1 m from ground. Trunk cavity with <10 cm open access hole
65	82	Small	8	151.6737178	-30.39500513	Small branch cavity in top of tree. Stag. Species unknown. Suitable for small birds, microbats.
66	80	Small	6	151.6735027	-30.39384801	Small knot hole in branch leading into cavity. East facing. Stag. Species unknown.
67	74	Small	8	151.6728941	-30.39371924	Stag. Species unknown. Two small holes into main stem, 8

Tree ID	DBH (cm)	Size class	Hollow height (m)	X	Y	Notes
						and 10 m, likely to lead to a trunk cavity. Bat potential.
68	100	Small	6	151.6715779	-30.39266066	Snapped and split limb on northern aspect of trunk, potential for splits to lead to cavities and hollows suitable for microbats.
69	109	Small	4	151.6723263	-30.39489341	Stag, species unknown. Dedicated wood and lifted bark in upper branches provides transitional or temporary habitat for bats, birds, inverts etc.
70	48	Small	6	151.6727982	-30.39571761	Stag. Species unknown. Three small holes in trunk and branches, potential for small birds, bats, etc. tree also has bees nest
71	67	Small	8	151.6707635	-30.39169724	Small hole at top of trunk into cavity. 5-10 cm.
72	95	Small	10	151.669653	-30.39543517	Multiple hollows
73	85	Small	4	151.6700709	-30.39551637	Multiple.
74	120	Small	8	151.6667206	-30.38872172	-
75	50	Small	5	151.6666126	-30.3915908	-
76	50	Small	5	151.6670897	-30.39161027	-
77	140	Small	5	151.666485	-30.3922654	-
78	150	Small	5	151.6664894	-30.39227704	-
79	210	Small	4	151.6662184	-30.39349586	-
80	1.5	Small	6	151.6670368	-30.39452522	-
81	150	Small	10	151.6671162	-30.39484757	-
82	110	Small	5	151.6660384	-30.39475992	-
83	350	Small	5	151.6641952	-30.39414964	-
84	1.9	Small	6	151.6648025	-30.38721351	-
85	180	Small	4	151.6640912	-30.38947058	-
86	60	Small	5	151.6640624	-30.38712526	Additional trunk hollow entrance at base of tree
87	40	Small	5	151.6638395	-30.38714895	Stag
88	60	Small	5	151.6711985	-30.38356915	Multiple
89	-	Small		151.6671388	-30.39477686	HBT - small size class
90	-	Small		151.6722791	-30.39590365	HBT - small

Tree ID	DBH (cm)	Size class	Hollow height (m)	X	Y	Notes
91	-	Small		151.6726574	-30.39576335	HBT - small
92	-	Small		151.6694549	-30.39020398	HBT - small
93	-	Small		151.6735192	-30.38814546	HBT - 2 small
94	-	Small		151.6697917	-30.38889329	HBT small
95	-	Small		151.6756783	-30.38518446	HBT small
96	-	Small		151.6761607	-30.38500892	HBT multiple small
97	-	Small		151.6767297	-30.38618958	HBT small multiple
98	-	Small		151.6778906	-30.38749022	HBT small 2
99	-	Small	-	151.6569732	-30.39201913	-
100	-	Small	-	151.6663369	-30.39146174	-
101	-	Small	-	151.6665833	-30.39157403	-
102	-	Small	-	151.6699354	-30.38962109	-
103	-	Small	-	151.6699589	-30.38960285	-
104	-	Small	-	151.6668848	-30.38658205	-
105	-	Small	-	151.6668888	-30.38657735	-
106	-	Small	-	151.6668996	-30.38656802	-
107	-	Small	-	151.6669043	-30.38656505	-
108	-	Small	-	151.6697972	-30.38889532	-
109	-	Small	-	151.6668995	-30.38657364	-

Appendix 9 On-site fauna observations

Common name	Species name
Amphibians	
beeping froglet	<i>Crinia parinsignifera</i>
clicking froglet	<i>Crinia signifera</i>
eastern banjo frog	<i>Limnodynastes dumerilii</i>
spotted grassfrog	<i>Limnodynastes tasmaniensis</i>
slender bleating treefrog	<i>Litoria balatus</i>
bleating treefrog	<i>Litoria dentata sensu lato</i>
broadpalmed rocket frog	<i>Litoria latopalmata</i>
eastern sedgefrog	<i>Litoria fallax</i>
striped rocketfrog	<i>Litoria nasuta</i>
emerald spotted treefrog	<i>Litoria peronii</i>
whistling tree frog	<i>Litoria virreauxii</i>
dusky gungan	<i>Uperoleia fusca</i>
Birds	
spiny-cheeked honeyeater	<i>Acanthagenys rufogularis</i>
yellow-rumped thornbill	<i>Acanthiza chrysorrhoa</i>
Australian owlet-nightjar	<i>Aegotheles cristatus</i>
pacific black duck	<i>Anas superciliosa</i>
wedge-tailed eagle	<i>Aquila audax</i>
white-necked heron	<i>Ardea pacifica</i>
little woodswallow	<i>Artamus minor</i>
hardhead	<i>Aythya australis</i>
fan-tailed cuckoo	<i>Cacomantis flabelliformis</i>
Australian wood duck	<i>Chenonetta jubata</i>
rufous songlark	<i>Cincloramphus mathewsi</i>
grey shrike-thrush	<i>Colluricincla harmonica</i>
black-faced cuckoo-shrike	<i>Coracina novaehollandiae</i>
Torresian crow	<i>Corvus orru</i>
pied butcherbird	<i>Cracticus nigrogularis</i>
grey butcherbird	<i>Cracticus torquatus</i>
laughing kookaburra	<i>Dacelo novaeguineae</i>

Common name	Species name
mistletoebird	<i>Dicaeum hirundinaceum</i>
white-faced heron	<i>Egretta novaehollandiae</i>
galah	<i>Eolophus roseicapillus</i>
eastern yellow robin	<i>Eopsaltria australis</i>
brown falcon	<i>Falco berigora</i>
nankeen kestrel	<i>Falco cenchroides</i>
white-throated gerygone	<i>Gerygone albogularis</i>
musk lorikeet	<i>Glossopsitta concinna</i>
magpie-lark	<i>Grallina cyanoleuca</i>
Australian magpie	<i>Gymnorhina tibicen</i>
welcome swallow	<i>Hirundo neoxena</i>
white-winged triller	<i>Lalage sueurii</i>
yellow-faced honeyeater	<i>Lichenostomus chrysops</i>
superb fairy-wren	<i>Malurus cyaneus</i>
noisy miner	<i>Manorina melanocephala</i>
white-throated honeyeater	<i>Melithreptus albogularis</i>
little pied cormorant	<i>Microcarbo melanoleucos</i>
Jacky winter	<i>Microeca fascinans</i>
crested pigeon	<i>Ocyphaps lophotes</i>
olive-backed oriole	<i>Oriolus sagittatus</i>
rufous whistler	<i>Pachycephala rufiventris</i>
striated pardalote	<i>Pardalotus striatus</i>
fairy martin	<i>Petrochelidon ariel</i>
tree martin	<i>Petrochelidon nigricans</i>
pied cormorant	<i>Phalacrocorax varius</i>
little friarbird	<i>Philemon citreogularis</i>
pale-headed rosella	<i>Platycercus adscitus</i>
crimson rosella	<i>Platycercus elegans</i>
eastern rosella	<i>Platycercus eximius</i>
red-rumped parrot	<i>Psephotus haematotus</i>
grey fantail	<i>Rhipidura albiscapa</i>
willie wagtail	<i>Rhipidura leucophrys</i>
weebill	<i>Smicromnis brevirostris</i>
pied currawong	<i>Strepera graculina</i>

Common name	Species name
common myna	<i>Sturnus tristis</i>
common starling	<i>Sturnus vulgaris</i>
Australasian grebe	<i>Tachybaptus novaehollandiae</i>
straw-necked ibis	<i>Threskiornis spinicollis</i>
masked lapwing	<i>Vanellus miles</i>
Mammal	
domestic cow	<i>Bos taurus</i>
European brown hare	<i>Lepus europaeus</i>
eastern grey kangaroo	<i>Macropus giganteus</i>
red-necked wallaby	<i>Notamacropus rufogriseus</i>
European rabbit	<i>Oryctolagus cuniculus</i>
domestic sheep	<i>Ovis aries</i>
common brushtail possum	<i>Trichosurus vulpecula</i>
red fox	<i>Vulpes vulpes</i>
Reptile	
eastern snake-necked turtle	<i>Chelodina longicollis</i>
eastern brown snake	<i>Pseudonaja textilis</i>

Appendix 10 Credit summary report

Proposal Details

Assessment Id 00049575/BAAS24012/24/00049576	Proposal Name Tilbuster 2 Solar Farm Extension	BAM data last updated * 28/10/2024
Assessor Name Jennifer Timbs	Report Created 24/11/2024	BAM Data version * Current classification (live - default) (80)
Assessor Number BAAS24012	BAM Case Status Finalised	Date Finalised 24/11/2024
Assessment Revision 0		Assessment Type Major Projects

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAI	Ecosystem credits
Armidale Quartz Hills Stringybark Forest												
3	3352_Zone_5_Degraded	Not a TEC	31.7	31.7	13.9	PCT Cleared - 75%	High Sensitivity to Gain			2.00		220
											Subtotal	220

New England Hills Stringybark-Box Woodland

1	3359_Zone_1_Degraded	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	25.9	25.9	20.8	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	338
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2	3359_Zone_2_Cultivated	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	15.8	15.8	23.3	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	230
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4	3359_Zone_3_Degraded	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	7.3	7.3	5.7	Population size	High Sensitivity to Gain	Critically Endangered Ecological Community	Not Listed	2.50	True	0
										Subtotal	568	
										Total	788	

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAI	Species credits
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<i>Myotis macropus / Southern Myotis (Fauna)</i>										
3359_Zone_1_D egraded	25.9	25.9	8.2	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False		106
3359_Zone_2_C ultivated	15.8	15.8	18.8	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False		149
3352_Zone_5_D egraded	31.7	31.7	12.6	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False		200
3359_Zone_3_D egraded	7.3	7.3	5.5	Biodiversity Conservation Act listing status	Species dependent on habitat attributes	Vulnerable	Not Listed	False		20
									Subtotal	475

Appendix 11 Biodiversity credit report



BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00049575/BAAS24012/24/00049576	Tilbuster 2 Solar Farm Extension	28/10/2024
Assessor Name	Assessor Number	BAM Data version *
Jennifer Timbs	BAAS24012	Current classification (live - default) (80)
Proponent Names	Report Created	BAM Case Status
	24/11/2024	Finalised
Assessment Revision		Assessment Type
0		Major Projects
Date Finalised		
24/11/2024		

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	3359-New England Hills Stringybark-Box Woodland



BAM Biodiversity Credit Report (Like for like)

Species

Nil

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT

No Changes

Predicted Threatened Species Not On Site

Name

No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

BAM Biodiversity Credit Report (Like for like)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
3359-New England Hills Stringybark-Box Woodland	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	49.8	568	0	568
3352-Armidale Quartz Hills Stringybark Forest	Not a TEC	13.9	220	0	220

3352-Armidale Quartz Hills Stringybark Forest

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
New England Grassy Woodlands This includes PCT's: 489, 501, 510, 533, 539, 571, 704, 734, 853, 1118, 1332, 3351, 3352, 3358, 3359, 3363	New England Grassy Woodlands >=70% and <90%	3352_Zone_5_Degraded	Yes	220	Armidale Plateau, Bundarra Downs, Coffs Coast and Escarpment, Eastern Nandewars, Ebor Basalts, Glenn Innes-Guyra Basalts, Macleay Gorges, Moredun Volcanics, Round Mountain, Walcha Plateau, Wongwibinda Plateau and Yarrowyck-Kentucky Downs. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Like for like)

3352-Armidale Quartz Hills Stringybark Forest						
3359-New England Hills Stringybark-Box Woodland	Like-for-like credit retirement options					
	Name of offset trading group	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511,	-	3359_Zone_1_ Degraded	Yes	338	Armidale Plateau, Bundarra Downs, Coffs Coast and Escarpment, Eastern Nandewars, Ebor Basalts, Glenn Innes-Guyra Basalts, Macleay Gorges, Moredun Volcanics, Round Mountain, Walcha Plateau, Wongwibinda Plateau and Yarrowyck-Kentucky Downs. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

BAM Biodiversity Credit Report (Like for like)

	<p>528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150</p>				
	<p>White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267,</p>		<p>3359_Zone_2_C ultivated</p>	<p>Yes</p>	<p>230 Armidale Plateau, Bundarra Downs, Coffs Coast and Escarpment, Eastern Nandewars, Ebor Basalts, Glenn Innes-Guyra Basalts, Macleay Gorges, Moredun Volcanics, Round Mountain, Walcha Plateau, Wongwibinda Plateau and Yarrowyck-Kentucky Downs. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.</p>

BAM Biodiversity Credit Report (Like for like)

	<p>268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150</p>					
	<p>White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and</p>		<p>3359_Zone_3_ Degraded</p>	<p>No</p>	<p>0</p>	<p>Armidale Plateau, Bundarra Downs, Coffs Coast and Escarpment, Eastern Nandewars, Ebor Basalts, Glenn</p>

BAM Biodiversity Credit Report (Like for like)

	<p>Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla</p> <p>This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693,</p>				<p>Innes-Guyra Basalts, Macleay Gorges, Moredun Volcanics, Round Mountain, Walcha Plateau, Wongwibinda Plateau and Yarrowyck-Kentucky Downs.</p> <p>or</p> <p>Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.</p>
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BAM Biodiversity Credit Report (Like for like)

1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
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Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Myotis macropus / Southern Myotis	3359_Zone_1_Degraded, 3359_Zone_2_Cultivated, 3352_Zone_5_Degraded, 3359_Zone_3_Degraded	45.1	475.00

Credit Retirement Options

Like-for-like credit retirement options

Species	Spp	IBRA subregion
Myotis macropus / Southern Myotis	Myotis macropus / Southern Myotis	Any in NSW

Proposal Details

Assessment Id

00049575/BAAS24012/24/00049576

Assessor Name

Jennifer Timbs

Proponent Name(s)

Assessment Revision

0

Date Finalised

24/11/2024

Proposal Name

Tilbuster 2 Solar Farm Extension

Assessor Number

BAAS24012

Report Created

24/11/2024

BAM data last updated *

28/10/2024

BAM Data version *

Current classification (live - default) (80)

BAM Case Status

Finalised

Assessment Type

Major Projects

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	Critically Endangered Ecological Community	3359-New England Hills Stringybark-Box Woodland
Species		
Nil		

Additional Information for Approval

PCT Outside Ibra Added

None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
3359-New England Hills Stringybark-Box Woodland	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	49.8	568	0	568.00
3352-Armidale Quartz Hills Stringybark Forest	Not a TEC	13.9	220	0	220.00

3352-Armidale Quartz Hills Stringybark Forest

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
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BAM Biodiversity Credit Report (Variations)

	<p>New England Grassy Woodlands This includes PCT's: 489, 501, 510, 533, 539, 571, 704, 734, 853, 1118, 1332, 3351, 3352, 3358, 3359, 3363</p>	<p>New England Grassy Woodlands >=70% and <90%</p>	<p>3352_Zone_5_Degraded</p>	<p>Yes</p>	<p>220</p>	<p>Armidale Plateau, Bundarra Downs, Coffs Coast and Escarpment, Eastern Nandewars, Ebor Basalts, Glenn Innes-Guyra Basalts, Macleay Gorges, Moredun Volcanics, Round Mountain, Walcha Plateau, Wongwibinda Plateau and Yarrowyck-Kentucky Downs. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.</p>
Variation options						
	Formation	Trading group	Zone	HBT	Credits	IBRA region
	Grassy Woodlands	Tier 2 or higher threat status	3352_Zone_5_Degraded	Yes (including artificial)	220	IBRA Region: New England Tablelands, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
3359-New England Hills Stringybark-Box Woodland	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla	-	3359_Zone_1_Degraded	Yes	338	Armidale Plateau, Bundarra Downs, Coffs Coast and Escarpment, Eastern Nandewars, Ebor Basalts, Glenn Innes-Guyra Basalts, Macleay Gorges, Moredun Volcanics, Round Mountain, Walcha Plateau, Wongwibinda Plateau and Yarrowyck-Kentucky Downs. or Any IBRA subregion that is within 100

BAM Biodiversity Credit Report (Variations)

	<p>This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150</p>					<p>kilometers of the outer edge of the impacted site.</p>
	<p>White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New</p>	<p>-</p>	<p>3359_Zone _2_Cultivated</p>	<p>Yes</p>	<p>230</p>	<p>Armidale Plateau, Bundarra Downs, Coffs Coast and Escarpment, Eastern Nandewars, Ebor Basalts, Glenn Innes-Guyra Basalts, Macleay Gorges, Moredun Volcanics, Round Mountain, Walcha</p>

BAM Biodiversity Credit Report (Variations)

	<p>England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396, 3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150</p>					<p>Plateau, Wongwibinda Plateau and Yarrowyck-Kentucky Downs. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.</p>
White Box - Yellow Box -	-		3359_Zone	No	0	Armidale Plateau, Bundarra Downs, Coffs

BAM Biodiversity Credit Report (Variations)

	<p>Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highla</p> <p>This includes PCT's: 74, 75, 83, 250, 266, 267, 268, 270, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 286, 298, 302, 312, 341, 342, 347, 350, 352, 356, 367, 381, 382, 395, 401, 403, 421, 433, 434, 435, 436, 437, 451, 483, 484, 488, 492, 496, 508, 509, 510, 511, 528, 538, 544, 563, 567, 571, 589, 590, 597, 599, 618, 619, 622, 633, 654, 702, 703, 704, 705, 710, 711, 796, 797, 799, 847, 851, 921, 1099, 1303, 1304, 1307, 1324, 1329, 1330, 1332, 1383, 1606, 1608, 1611, 1691, 1693, 1695, 1698, 3314, 3359, 3363, 3373, 3376, 3387, 3388, 3394, 3395, 3396,</p>		<p>_3_Degrad ed</p>			<p>Coast and Escarpment, Eastern Nandewars, Ebor Basalts, Glenn Innes-Guyra Basalts, Macleay Gorges, Moredun Volcanics, Round Mountain, Walcha Plateau, Wongwibinda Plateau and Yarrowyck-Kentucky Downs.</p> <p>or</p> <p>Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.</p>
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BAM Biodiversity Credit Report (Variations)

	3397, 3398, 3399, 3406, 3415, 3533, 4147, 4149, 4150					
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Species Credit Summary

Species	Vegetation Zone/s	Area / Count	Credits
Myotis macropus / Southern Myotis	3359_Zone_1_Degraded, 3359_Zone_2_Cultivated, 3352_Zone_5_Degraded, 3359_Zone_3_Degraded	45.1	475.00

Credit Retirement Options Like-for-like options

Myotis macropus/ Southern Myotis	Spp		IBRA region
	Myotis macropus /Southern Myotis		Any in NSW
	Variation options		
	Kingdom	Any species with same or higher category of listing under Part 4 of the BC Act shown below	IBRA region
	Fauna	Vulnerable	Armidale Plateau, Bundarra Downs, Coffs Coast and Escarpment, Eastern Nandewars, Ebor Basalts, Glenn Innes-Guyra Basalts, Macleay Gorges, Moredun Volcanics, Round Mountain, Walcha Plateau, Wongwibinda Plateau and Yarrowyck-Kentucky Downs. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Appendix 12 Scattered tree credit reports

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00049575/BAAS24012/24/00051692	Tilbuster 2	28/10/2024
Assessor Name	Report Created	BAM Data version *
Jennifer Timbs	24/11/2024	Current classification (live - default) (80)
Assessor Number	BAM Case Status	Date Finalised
BAAS24012	Finalised	24/11/2024
Assessment Revision	BOS entry trigger	Assessment Type
0	Major Project	Scattered Trees

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees Credit Requirement

Class	Contains hollows	Number of trees	Ecosystem credits
3359-New England Hills Stringybark-Box Woodland			
3	True	1.0	1
3	True	1.0	1
3	False	5.0	4
3	False	2.0	2
			8
			8

Species credits for threatened species

Nil

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00049575/BAAS24012/24/00051692	Tilbuster 2	28/10/2024
Assessor Name	Report Created	BAM Data version *
Jennifer Timbs	24/11/2024	Current classification (live - default) (80)
Assessor Number	BAM Case Status	Date Finalised
BAAS24012	Finalised	24/11/2024
Assessment Revision	BOS entry trigger	Assessment Type
0	Major Project	Scattered Trees

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Threatened species reliably predicted to utilise the site. No surveys are required for these species. Ecosystem credits apply to these species.

Common Name	Scientific Name
Black Falcon	Falco subniger
Black-chinned Honeyeater (eastern subspecies)	Melithreptus gularis gularis
Black-necked Stork	Ephippiorhynchus asiaticus
Brown Treecreeper (eastern subspecies)	Climacteris picumnus victoriae
Dusky Woodswallow	Artamus cyanopterus cyanopterus
Eastern False Pipistrelle	Falsistrellus tasmaniensis
Flame Robin	Petroica phoenicea
Little Eagle	Hieraaetus morphnoides
Little Lorikeet	Glossopsitta pusilla
Regent Honeyeater	Anthochaera phrygia
South-eastern Glossy Black-Cockatoo	Calyptorhynchus lathami lathami
Speckled Warbler	Chthonicola sagittata
Spotted Harrier	Circus assimilis
Swift Parrot	Lathamus discolor
Varied Sittella	Daphoenositta chrysoptera
White-bellied Sea-Eagle	Haliaeetus leucogaster
White-throated Needletail	Hirundapus caudacutus



BAM Predicted Species Report

Yellow-bellied Sheath-tail-bat

Saccolaimus flaviventris

Threatened species assessed as not within the vegetation zone(s) for the PCT(s)

Refer to BAR for detailed justification

Common Name	Scientific Name	Justification in the BAM-C
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Scattered Tree Report

Proposal Details

Assessment Id	Assessment name	BAM data last updated *
00049575/BAAS24012/24/00051692	Tilbuster 2	28/10/2024
Assessor Name	Report Created	BAM Data version *
Jennifer Timbs	24/11/2024	Current classification (live - default) (80)
Assessor Number	BAM Case Status	Date Finalised
BAAS24012	Finalised	24/11/2024
Assessment Revision	Assessment Type	BOS entry trigger
0	Scattered Trees	Major Project

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Scattered Trees

PCT code	PCT name	No. of trees	Species	DBHOB Category	Contain hollows	Class	Assessment required
3359	New England Hills Stringybark-Box Woodland	1	Eucalyptus melliodora	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species

Scattered Tree Report

3359	New England Hills Stringybark-Box Woodland	1	Eucalyptus blakelyi	>= 50cm	True	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
3359	New England Hills Stringybark-Box Woodland	5	Eucalyptus blakelyi	>= 50cm	False	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species
3359	New England Hills Stringybark-Box Woodland	2	Eucalyptus melliodora	>= 50cm	False	3	Visual assessment for hollows, presence of important habitat features and habitat suitability for threatened species



BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00049575/BAAS24012/24/00051692	Tilbuster 2	28/10/2024
Assessor Name	Assessor Number	BAM Data version *
Jennifer Timbs	BAAS24012	Current classification (live - default) (80)
Proponent Names	Report Created	Date Finalised
	24/11/2024	24/11/2024
Assessment Revision	BOS entry trigger	Assessment Type
0	Major Project	Scattered Trees
BAM Case Status	* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.	
Finalised		

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks

No Changes

Ecosystem Credit Summary

Assessment Id	Proposal Name
00049575/BAAS24012/24/00051692	Tilbuster 2

BAM Biodiversity Credit Report (Like for like)

PCT	TEC	HBT Cr	No HBT Cr	Credits
3359-New England Hills Stringybark-Box Woodland	Not a TEC	2	6	8

Credit classes for 3359	Like-for-like options				
	Class	Trading group	HBT	Credits	IBRA region
	New England Grassy Woodlands	New England Grassy Woodlands >=70% and <90%	Yes	2	Armidale Plateau, Bundarra Downs, Coffs Coast and Escarpment, Eastern Nandewars, Ebor Basalts, Glenn Innes-Guyra Basalts, Macleay Gorges, Moredun Volcanics, Round Mountain, Walcha Plateau, Wongwibinda Plateau and Yarrowyck-Kentucky Downs. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
	New England Grassy Woodlands	New England Grassy Woodlands >=70% and <90%	No	6	Armidale Plateau, Bundarra Downs, Coffs Coast and Escarpment, Eastern Nandewars, Ebor Basalts, Glenn Innes-Guyra Basalts, Macleay Gorges, Moredun Volcanics, Round Mountain, Walcha Plateau, Wongwibinda Plateau and Yarrowyck-Kentucky Downs. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.



BAM Biodiversity Credit Report (Like for like)

Credit classes for
3359



BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *	
00049575/BAAS24012/24/00051692	Tilbuster 2	28/10/2024	
Assessor Name	Assessor Number	BAM Data version *	
Jennifer Timbs	BAAS24012	Current classification (live - default) (80)	
Proponent Name(s)	Report Created	Assessment Type	Date Finalised
	24/11/2024	Scattered Trees	24/11/2024
Assessment Revision	BOS entry trigger	BAM Case Status	
0	Major Project	Finalised	

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Potential Serious and Irreversible Impacts

Nil

Additional Information for Approval

PCTs With Customized Benchmarks
No Changes

Ecosystem Credit Summary

PCT	TEC	HBT Cr	No HBT Cr	Credits
3359-New England Hills Stringybark-Box Woodland	Not a TEC	2	6	8

BAM Biodiversity Credit Report (Variations)

Credit classes for 3359	Like-for-like options				
	Class	Trading group	HBT	Credits	IBRA region
	New England Grassy Woodlands	New England Grassy Woodlands >=70% and <90%	Yes	2	Armidale Plateau, Bundarra Downs, Coffs Coast and Escarpment, Eastern Nandewars, Ebor Basalts, Glenn Innes-Guyra Basalts, Macleay Gorges, Moredun Volcanics, Round Mountain, Walcha Plateau, Wongwibinda Plateau and Yarrowyck-Kentucky Downs. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
New England Grassy Woodlands	New England Grassy Woodlands >=70% and <90%	No	6	Armidale Plateau, Bundarra Downs, Coffs Coast and Escarpment, Eastern Nandewars, Ebor Basalts, Glenn Innes-Guyra Basalts, Macleay Gorges, Moredun Volcanics, Round Mountain, Walcha Plateau, Wongwibinda Plateau and Yarrowyck-Kentucky Downs. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.	
Variation options					

BAM Biodiversity Credit Report (Variations)

	Formation	Trading group	HBT	IBRA region
	Grassy Woodlands	Tier 2	Yes (including artificial)	IBRA Region: New England Tablelands, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Revision History

Revision No.	Revision date	Details	Prepared by	Reviewed by	Approved by
00	30/09/2024	Tilbuster 2 Solar Farm BDAR	Jennifer Timbs, Ecologist Ziggy Andersons, Senior Ecologist Rachel McBride, Senior Ecologist	Sally Cooper, Senior Restoration Ecologist	Leigh Knight, Principal Environmental Planner
01	04/10/2024	Tilbuster 2 Solar Farm BDAR – minor changes following GHD review	Rachel McBride, Senior Ecologist	Leigh Knight, Principal Environmental Planner	
02	25/11/2024	Tilbuster 2 Solar Farm BDAR – case finalised in BOAMS	Jennifer Timbs, Ecologist	Rachel McBride, Senior Ecologist	

Distribution List

Copy #	Date	Type	Issued to	Name
1	25/11/2024	Electronic	GHD	Lisa King
2	25/11/2024	Electronic	Ecosure	Administration

Citation: Ecosure, 2024, *Tilbuster 2 Solar Farm Biodiversity Development Assessment Report*, Report to GHD Publication Location – Coffs Harbour

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